Special Flood Hazard Evaluation Report

Black River & Mill Creek

Town of Lowville, Lewis County, New York

Prepared for the
New York State Department of Environmental Conservation

US Army Corps
of Engineers
Buffalo District

March 1992

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This report documents the results of an investigation to determine the potential flood situation along the Black River and Mill Creek within the Town of Lowville, New York. The study reaches include the Black River for its entire length through the Town of Lowville, a distance of 9.8 miles, and Mill Creek from its confluence with the Black River, upstream a distance of 7.2 miles, excluding the reach within the Village of Lowville.

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SPECIAL FLOOD HAZARD EVALUATION REPORT
BLACK RIVER AND MILL CREEK
TOWN OF LOWVILLE
LEWIS COUNTY, NEW YORK

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INTRODUCTION

This Special Flood Hazard Evaluation Report documents the results of an investigation to determine the potential flood situation along the Black River and Mill Creek within the town of Lowville, New York. This study was conducted at the request of the New York State Department of Environmental Conservation under the authority of Section 206 of the 1960 Flood Control Act, as amended. The study reaches include the Black River for its entire length through the town of Lowville, a distance of 9.8 miles, and Mill Creek from its confluence with the Black River, upstream a distance of approximately 7.2 miles, excluding the reach within the village of Lowville (see Index Map following Plate 7).

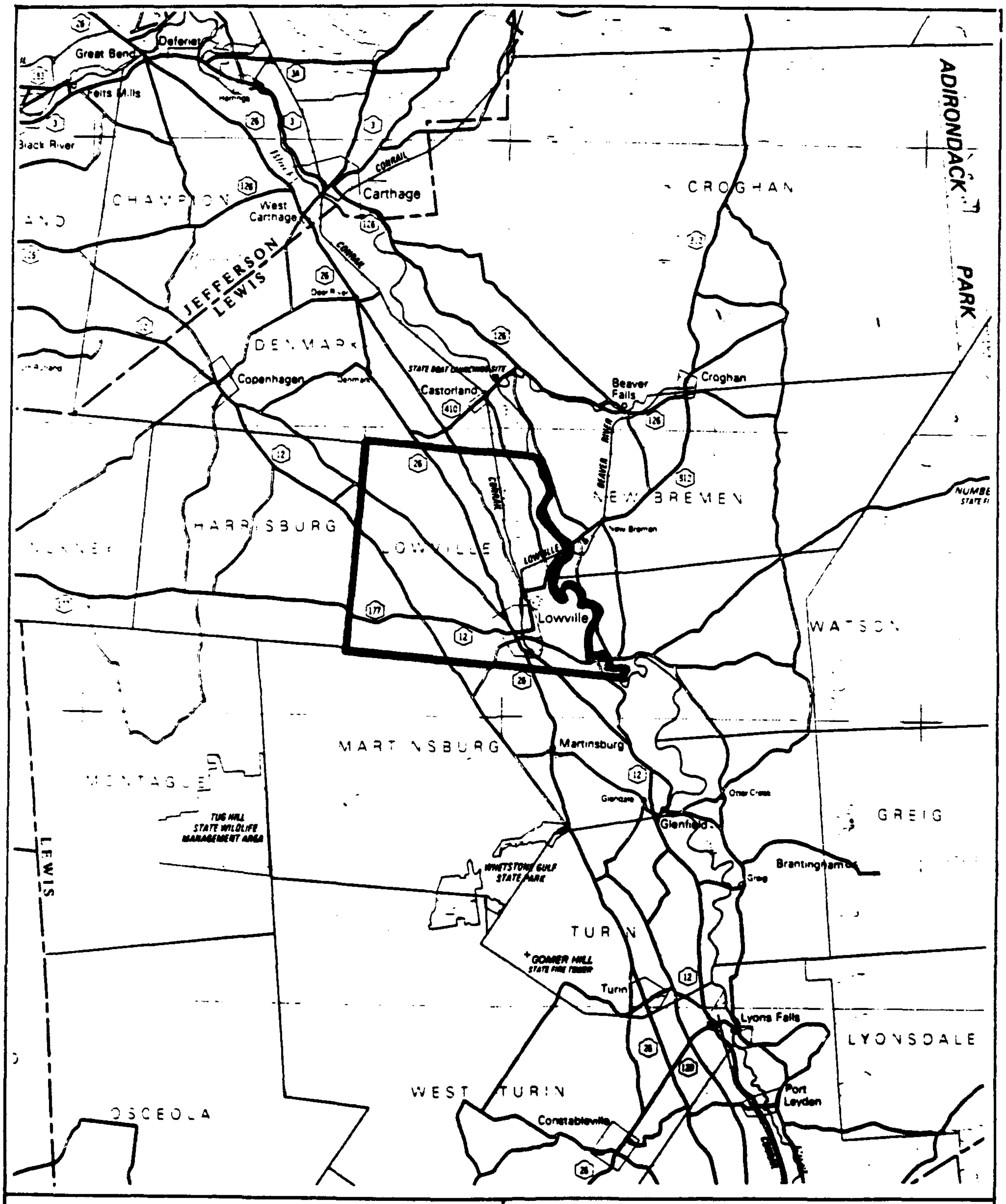
The town of Lowville is located in northern New York State, southeast of Watertown and approximately 85 miles northeast of Syracuse. It is bordered by the town of Denmark to the north, the towns of New Bremen and Watson to the east, the town of Martinsburg to the south, and the town of Harrisburg to the west (see Figure 1).

The climate is characterized by long, cold winters. In January, the average mean temperature is 17.6 F, and zero or below is observed on the average of 26 days during the winter. The summer climate is cool, with July temperatures averaging 67.9 F. Average annual snowfall measures 116.0 inches, and average annual precipitation is 38.06 inches (Reference 1).

The Black River rises in the eastern-central portion of Herkimer County, flows southwesterly 20 miles to Forestville, then northerly for about 65 miles to Carthage. It then flows westerly through the city of Watertown to the northeastern end of Lake Ontario. Within the study area, the river meanders through a broad flat valley which varies from .5 to 2 miles wide. The Black River has a United States Geological Survey stream gaging station at Watertown. The drainage area at the gage is 1,864 square miles.

Mill Creek is an ungaged stream with a total drainage area of 35.61 square miles. It originates in the town of Harrisburg and flows in a southeasterly direction through the town and village of Lowville to its confluence with the Black River. The watershed is characterized by heavily wooded, rolling topography. Surface elevations range from 740 feet at the mouth, to a high of about 1,680 feet.

Knowledge of potential floods and flood hazards is important in land use planning. This report identifies the 100-year and 500-year flood plains and 100-year floodway for the Black River and Mill Creek within the town of Lowville.



TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

VICINITY MAP

Figure 1

Information developed for this study will be used by local officials to manage future flood plain development. While the report does not provide solutions to flood problems, it does furnish a suitable basis for the adoption of land use controls to guide flood plain development, thereby preventing intensification of the flood loss problem. It will also aid in the development of other flood damage reduction techniques to modify flooding and reduce flood damages which might be embodied in an overall Flood Plain Management (FPM) program. Other types of studies, such as those of environmental attributes and the current and future land use roles of the flood plain as part of its surroundings, would also profit from this information.

Although Flood Insurance Rate Maps (FIRM) have been developed for the community, detailed analyses were not used to study the stream reaches analyzed in this study. The area was thought to have a low development potential at the time the FIRM's were prepared. However, the area is now experiencing residential development pressure, and local officials requested detailed flood plain information to manage development.

Additional copies of this report can be obtained from the New York State Department of Environmental Conservation until its supply is exhausted, and the National Technical Information Service of the U.S. Department of Commerce, Springfield, Virginia 22161, at the cost of reproducing the report. The Buffalo District Corps of Engineers will provide technical assistance and guidance to planning agencies in the interpretation and use of the hydrologic data obtained for this study.

PRINCIPAL FLOOD PROBLEMS

The greatest potential and frequency for floods within the study area occurs in the early spring when rain combines with snowmelt. Although cool, early spring temperatures are conducive to a slower rate of snowmelt, spring floods do occur most years. Because of the large accumulation of snow that falls annually, spring flooding can be expected to occur in the future. Increased development may also contribute to the potential for flooding.

Flood Magnitudes and Their Frequencies

Floods are classified on the basis of their frequency or recurrence interval. A 100-year flood is an event with a magnitude that can be expected to be equaled or exceeded once on the average during any 100-year period. It has a 1.0 percent chance of occurring in any given year. It is important to note that, while on a long-term basis the exceedence averages out to once per 100 years, floods of this magnitude can occur in any given year or even in consecutive years and within any given time interval. For example, there is a greater than 50 percent probability that a 100-year event will occur during a 70-year lifetime. Additionally, a house which is built within the 100-year flood level has about a one-in-four chance of being flooded in a 30-year mortgage life.

Hazards and Damages of Large Floods

The extent of damage caused by any flood depends on the topography of the flooded area, the depth and duration of flooding, the velocity of flow, the rate of rise in water surface elevation, and development of the flood plain. Deep water flowing at a high velocity and carrying floating debris would create conditions hazardous to persons and vehicles which attempt to cross the flood plain. Generally, water 3 or more feet deep which flows at a velocity of 3 or more feet per second could easily sweep an adult off his feet and create definite danger of injury or drowning. As indicated in Table 5, flow velocities exceed 3 feet per second on Mill Creek. Rapidly rising and swiftly flowing floodwater may trap persons in homes that are ultimately destroyed or in vehicles that are ultimately submerged or floated. Since water lines can be ruptured by deposits of debris and by the force of flood waters, there is the possibility of contaminated domestic water supplies. Damaged sanitary sewer lines and sewage treatment plants could result in the pollution of floodwaters and could create health hazards. Isolation of areas by floodwater could create hazards in terms of medical, fire, or law enforcement emergencies.

HYDROLOGIC ANALYSES

Hydrologic analyses were carried out to determine the peak discharge-frequency relationships for each flooding source affecting the community.

For this study, the 9.8 miles of the Black River were subdivided into three hydrologic reaches. An HEC-1 model prepared for a previous study of the entire Black River watershed and modified for a 1989 Flood Insurance Study was used to extrapolate discharges for this study (Reference 2). Results were in agreement with a frequency analysis of the gage data at Watertown. The values for the 100-year and 500-year peak discharges for the Black River reaches are shown in Table 1.

For Mill Creek, the stream was divided into five subreaches, and discharges were calculated at the downstream point of each subreach. The method used to determine the 100-year and 500-year discharges was developed by the Hydrologic Engineering Center (HEC) at Davis, California. For this study, the kinematic wave method of HEC-1 was applied to determine runoff and to simulate flood routing (Reference 3). The watershed was divided into 40 subbasins; for each subbasin, the following input data were required: 1) drainage area, 2) SCS curve number, 3) overland flow length, 4) representative subbasin slope, 5) Manning's "n", 6) channel length, 7) channel slope, 8) channel roughness, 9) channel shape, 10) width, and 11) sideslopes. A hypothetical storm was generated to produce the 100-year, 24-hour precipitation. In addition, storms were generated for the 2-year, 10-year, 25-year, and 50-year rainfalls. A discharge-frequency relationship was developed for each subbasin and 500 year discharges were extrapolated.

Drainage areas were determined by field inspection of the watersheds in conjunction with USGS 7.5-minute topographic maps (Reference 4). The values for the drainage areas and 100-year and 500-year peak discharges for the five subreaches of Mill Creek are shown in Table 1.

Table 1 - Summary of Discharges

Location	Drainage Area (sq. mi.)	Peak Discharges (cfs) 100-Yr	Peak Discharges (cfs) 500-Yr
Black River			
Reach 1 - just upstream of Mill Creek	1140	36,000	44,500
Reach 2 - just upstream of Crystal Creek	1187	37,000	48,000
Reach 3 - at Lowville-Denmark corporate limit	1235	39,000	49,000
Mill Creek			
Reach 1 - 4500 feet north of Bickford Road	3	630	940
Reach 2 - 600 feet west of Gordon Road	6	780	1,200
Reach 3 - 1300 feet east of Gordon Road	12	1,220	1,900
Reach 4 - 200 feet west of State Route 12 and State Route 26	29	2,750	4,600
Reach 5 - at the mouth	36	3,600	6,000

HYDRAULIC ANALYSES

Analyses of the hydraulic characteristics of flooding from sources studied were carried out to provide estimates of the elevations of floods for the 100-year and 500-year recurrence intervals.

Cross-section data for the backwater analyses of the Black River were obtained from field surveys performed by Buffalo District survey personnel in February 1974. Additional elevation data were obtained in May 1991. Cross sectional data for Mill Creek were obtained by field survey also completed in May 1991. Additional data were obtained from USGS topographic maps (Reference 4). All bridges and culverts were surveyed to determine elevation data and structural geometry with the exception of the Route 812 bridge over the Black River. The New York State Department of Transportation is planning to replace this bridge in the

near future; therefore, the design of the new bridge was incorporated in the hydraulic model. Spot elevations were obtained in the overbank areas in order to accurately delineate the flood plain boundaries.

Water surface elevations for the 100-year and 500-year recurrence intervals were computed using the HEC-2 step-backwater computer program (Reference 5). The starting water surface elevation for the Black River was determined using the slope-area method beginning at a point 4,300 feet downstream of the Lowville-Denmark corporate limit. The starting water surface elevation for Mill Creek downstream of the village of Lowville was determined using the slope area method just above the confluence with the Black River. The starting water surface elevation for Mill Creek above the village was obtained from water surface profiles of Mill Creek in the Village of Lowville completed by the Buffalo District in December 1990 (Reference 6).

For Mill Creek, both subcritical and supercritical profile computations were performed due to the steep topography of the creek in its lower study reaches. Subcritical flow generally exists from the Gordon Road bridge upstream. Comparing the two profiles in the supercritical reach downstream of Gordon Road, the differences in water surface elevations are slight. Therefore, the profile of the "backwater" run is presented in this report.

At Willow Grove Road on Mill Creek (see Plate 18), a cut-off channel carries flows in excess of the natural channel capacity. As a result of this analysis, it was determined that the flow capacity of the cut-off channel is 500 cfs. Discharge greater that this is distributed down the natural channel and the surrounding farmland as sheet flow. The flooded area maps (Plates 17-19) are drawn to reflect this.

Locations of the selected cross-sections used in the hydraulic analyses are shown on the Flood Profiles (Plates 1 through 7) and on the Flooded Area Maps (Plates 8 through 19).

Channel and overbank roughness factors (Manning's "n") used in the hydraulic computations were selected using engineering judgment and were based on field observations of the stream and flood plain areas. The values for Mannings "n" and the contraction and expansion coefficients used in the study reaches are shown in Tables 2 and 3, respectively.

Table 2. Mannings "n"

Stream	Channel	Overbank
Black River	.020 - .035	.050 - .150
Mill Creek	.015 - .045	.040 - .080

Table 3. Coefficients

Stream	Contraction	Expansion
Black River	.1 - .3	.3 - .8
Mill Creek	.1 - .3	.3 - .5

Flood profiles were drawn showing the computed water surface elevations for the selected recurrence intervals. The flood plain boundaries were delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using USGS topographic maps and spot elevations obtained during the field surveys. Small areas within the flood plain boundaries may be above the flood elevations, but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

Floodways were determined for the streams studied in detail. Floodway encroachments were based on equal conveyance reduction from each side of the flood plain. Per New York State standard, the maximum increase in stage due to encroachment was limited to 1 foot provided that hazardous velocities were not produced. Floodway widths were computed at cross sections and varied from 27 to 228 feet on Mill Creek and 1,247 feet to 3,215 feet for the Black River. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections and are shown in Tables 4 and 5. The computed floodways are also shown on the Flooded Area Maps, Plates 8 through 19. In cases where the floodway and the 100-year flood plain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway for Black River lie outside the corporate boundary.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profile are considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Descriptions of the marks are presented in Table 6.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE
Black River								
A	69,690	2,898	23,359	1.7	737.6	737.6	737.9	.3
B	82,870	1,559	16,318	2.3	739.7	739.7	740.5	.8
C	92,370	3,215	29,998	1.2	742.4	742.4	743.3	.9
D	111,090	1,247	14,912	2.4	743.8	743.8	744.7	.9

1/ Distance is measured in feet from the crest of Carthage Dam.

FEDERAL EMERGENCY MANAGEMENT AGENCY

Town of Lowville, NY

Lewis County

FLOODWAY DATA

BLACK RIVER

TABLE 4

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE
MILL CREEK								
Downstream of Village								
A	2,800	228	802	4.6	739.2	739.2	739.3	.1
B	4,600	230	1,049	3.5	741.6	741.6	742.1	.5
C	6,300	120	733	4.6	743.3	743.3	744.1	.8
D	8,740	102	387	8.7	756.8	756.8	756.8	.0
Upstream of Village								
E	22,000	57	281	9.8	1,000.8	1,000.8	1,001.1	.3
F	28,100	57	223	5.4	1,112.7	1,112.7	1,112.8	.1
G	32,225	64	132	5.9	1,185.1	1,185.1	1,185.1	.0
H	36,200	46	215	3.6	1,193.1	1,193.1	1,192.3	.8
I	40,100	46	186	4.2	1,205.0	1,205.0	1,205.2	.2
J	43,600	45	135	4.7	1,215.6	1,215.6	1,215.6	.0
K	47,000	27	97	6.5	1,245.3	1,245.3	1,245.3	.0

1/ Distance is measured in feet from confluence with Black River.

FEDERAL EMERGENCY MANAGEMENT AGENCY

Town of Lowville, NY
Lewis County

FLOODWAY DATA

MILL CREEK

TABLE 5

Table 6 - Elevation Reference Marks

Reference Mark	Elevation (feet NGVD)	Description of Location
RM 1	737.51	PK nail in the centerline of Ridge Road at the Lowville/-Denmark corporate limit.
RM 2	744.01	Aluminum tablet stamped "744", located 3.6 miles east of Lowville, in east abutment at south end of Beaver River railroad bridge over Black River.
RM 3	740.13	Standard tablet (BM 53 MEA 1965 741) located at junction of Waters Road and T-Road in Dadville, NY.
RM 4	752.55	Standard tablet stamped "744 1911 reset 1963" in southwest wingwall of Number Four Road highway bridge over Black River at Watson, NY.
RM 5	750.59	PK nail in telephone pole #21 at a bend in Maple Road (near Cross section 4600).
RM 6	781.23	West flange bolt on fire hydrant at intersection of Water Street and East State Street.
RM 7	968.48	Standard disk, stamped "F 198-1942" at a concrete culvert in the center of the top of the south headwall, 24.8 feet south of the center-line of the highway and 18.2 feet southwest of power trans-mission line pole #22 and level with the highway. Located on State Highway #12 0.6 miles west from Post Office at Lowville.
RM 8	986.32	Yellow mark on the upstream left abutment of State Road #12 bridge over Mill Creek, located just west of Clinton Street.
RM 9	1,160.82	Chiseled square on the upstream left abutment of Gordon Road bridge over Mill Creek.

RM 10	1,193.72	Chiseled square on the downstream right abutment of Bickford Road over Mill Creek.
RM 11	1,228.86	Yellow mark on top of steel culvert on the downstream face of Willow Grove Road over Mill Creek.
RM 12	1,265.88	Chiseled square on downstream left wingwall of State Road #12 over Mill Creek west of O'Brian Road.

UNIFIED FLOOD PLAIN MANAGEMENT

Historically, the alleviation of flood damage has been accomplished almost exclusively by the construction of protective works such as reservoirs, channel improvements, and floodwalls and levees. However, in spite of the billions of dollars that have already been spent for construction of well-designed and efficient flood control works, annual flood damages continue to increase because the number of persons and structures occupying floodprone lands is increasing faster than protective works can be provided.

Recognition of this trend has forced a reassessment of the flood control concept and resulted in the broadened concept of unified flood plain management programs. Legislative and administrative policies frequently cite two approaches: structural and nonstructural, for adjusting to the flood hazard. In this context, "structural" is usually intended to mean adjustments that modify the behavior of floodwaters through the use of measures such as dams and channel work. "Nonstructural" is usually intended to include all other adjustments in the way society acts when occupying or modifying a flood plain (e.g., regulations, floodproofing, insurance, etc.). Both structural and nonstructural tools are used for achieving desired future flood plain conditions. There are three basic strategies which may be applied individually or in combination: (1) modifying the susceptibility to flood damage and disruption, (2) modifying the floods themselves, and (3) modifying (reducing) the adverse impacts of floods on the individual and the community.

Modify Susceptibility to Flood Damage and Disruption

The strategy to modify susceptibility to flood damage and disruption consists of actions to avoid dangerous, economically undesirable, or unwise use of the flood plain. Responsibility for implementing such actions rests largely with the non-Federal sector and primarily at the local level of government.

These actions include restrictions in the mode and the time of occupancy; in the ways and means of access; in the pattern, density, and elevation of structures and in the character of their materials (structural strength, absorptiveness, solubility, corrodibility); in the shape and type of buildings and in their contents; and in the appurtenant facilities and landscaping of the grounds. The strategy may also necessitate changes in the interdependencies between flood plains and surrounding areas not subject to flooding, especially interdependencies regarding utilities and commerce. Implementing mechanisms for these actions include land use regulations, development and redevelopment policies, floodproofing, disaster preparedness and response plans, and flood forecasting and warning systems.

Different tools may be more suitable for developed or underdeveloped flood plains or for urban or rural areas. The information contained in this report is particularly useful for the preparation of flood plain regulations.

a. Flood Plain Regulations.

Flood plain regulations apply to the full range of ordinances and other means designed to control land use and construction within floodprone areas. The term encompasses zoning ordinances, subdivision regulations, building and housing codes, encroachment line statutes, open area regulations, and other similar methods of management which affect the use and development of floodprone areas.

Flood plain land use management does not prohibit use of floodprone areas; to the contrary, flood plain land use management seeks the best use of flood plain lands. The flooded area map and the water surface profile contained in this report can be used to guide development in the flood plain. The elevations shown on the profile should be used to determine flood heights because they are more accurate than the outlines of flooded areas. It is recommended that development in areas susceptible to frequent flooding adhere to the principles expressed in Executive Order 11988 - Flood Plain Management, whose objective is to ". . . avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of flood plains . . . whenever there is a practicable alternative." Accordingly, development in areas susceptible to frequent flooding should consist of construction which has a low damage potential such as parking areas and golf courses. High value construction such as buildings, should be located outside the flood plain to the fullest extent possible. In instances where no practicable alternative exists, the land should be elevated to minimize damages. If it is uneconomical to elevate the land in these areas, means of floodproofing the structure should be given careful consideration.

b. <u>Development Zones</u>.

A flood plain consists of two zones. The first zone is the designated "floodway" or that cross sectional area required for carrying or discharging the anticipated flood waters with a maximum 1-foot increase in flood level (New York State Department of Environmental Conservation standard). Velocities are the greatest and most damaging in the floodway. Regulations essentially maintain the flow-conveying capability of the floodway to minimize inundation of additional adjacent areas. Uses which are acceptable for floodways include parks, parking areas, open spaces, etc.

The second zone of the flood plain is termed the "floodway fringe" or restrictive zone, in which inundation might occur but where depths and velocities are generally low. Although not recommended if practicable alternatives exist, such areas can be developed provided structures are placed high enough or floodproofed to be reasonably free from flood damage during the 100-year flood. Typical relationships between the floodway and floodway fringe are shown in Figure 2. The floodways for Black River and Mill Creek have been plotted on the Flooded Area Maps, Plates 8 through 19.

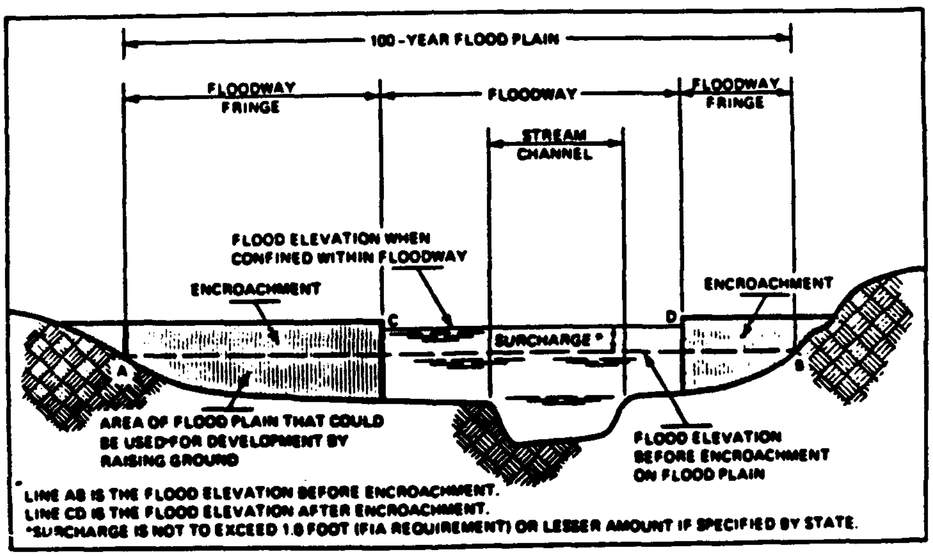


Figure 2 - Floodway Schematic

c. <u>Formulation of Flood Plain Regulations</u>.

Formulation of flood plain regulations in a simplified sense involves selecting the type and degree of control to be exercised for each specific flood plain. In principle, the form of the regulations is not as important as a maintained adequacy of control. The degree of control normally varies with the flood hazard as measured by depth of inundation, velocity of flow, frequency of flooding, and the need for available land. Considerable planning and research is required for the proper

formulation of flood plain regulations. Formulation of flood plain regulations may require a lengthy period of time during which development is likely to occur. In such cases, temporary regulations should be adopted and amended later as necessary.

Modify Flooding

The traditional strategy of modifying floods through the construction of dams, dikes, levees and floodwalls, channel alterations, high flow diversions and spillways, and land treatment measures has repeatedly demonstrated its effectiveness for protecting property and saving lives, and it will continue to be a strategy of flood plain management. However, in the future, reliance solely upon a flood modification strategy is neither possible nor desirable. Although the large capital investment required by flood modifying tools has been provided largely by the Federal Government, sufficient funds from Federal sources have not been and are not likely to be available to meet all situations for which flood modifying measures would be both effective and economically feasible. Another consideration is that the cost of maintaining and operating flood control structures falls upon local governments.

Flood modifications acting alone leave a residual flood loss potential and can encourage an unwarranted sense of security leading to inappropriate use of lands in the areas that are directly protected or in adjacent areas. For this reason, measures to modify possible floods should usually be accompanied by measures to modify the susceptibility to flood damage, particularly by land use regulations.

Modify the Impact of Flooding on Individuals and the Community

A third strategy for mitigating flood losses consists of actions designed to assist individuals and communities in their preparatory, survival, and recovery responses to floods. Tools include information dissemination and education, arrangements for spreading the costs of the loss over time, purposeful transfer of some of the individual's loss to the community by reducing taxes in flood prone areas, and the purchase of Federally subsidized flood insurance.

The distinction between a reasonable and unreasonable transfer of costs from the individual to the community can also be regulated and is a key to effective flood plain management.

CONCLUSION

This report presents local flood hazard information for the Black River and Mill Creek in the town of Lowville, New York. The U.S. Army Corps of Engineers, Buffalo District, will provide interpretation in the application of the data contained in this report, particularly as to its use in developing effective flood plain regulations. Requests should be coordinated with the New York State Department of Environmental Conservation.

GLOSSARY

BACKWATER	The resulting high water surface in a given stream due to a downstream obstruction or high stages in an intersecting stream.
BASE FLOOD	A flood which has an average return interval in the order of once in 100 years, although the flood may occur in any year. It is based on statistical analysis of streamflow records available for the watershed and analysis of rainfall and runoff characteristics in the general region of the watershed. It is commonly referred to as the "100-year flood."
DISCHARGE	The quantity of flow in a stream at any given time, usually measured in cubic feet per second (cfs).
FLOOD	An overflow of lands not normally covered by water. Floods have two essential characteristics: the inundation of land is temporary and the lands are adjacent to and inundated by overflow from a river, stream, ocean, lake, or other body of standing water. Normally a "flood" is considered as any temporary rise in streamflow or stage, but not the ponding of surface water, that results in significant adverse effects in the vicinity. Adverse effects may include damages from overflow of land areas, temporary backwater effects in sewers and local drainage channels, creation of unsanitary conditions or other unfavorable situations by deposition of materials in stream channels during flood recessions, and rise of groundwater coincident with increased streamflow.
FLOOD CREST	The maximum stage or elevation reached by floodwaters at a given location.
FLOOD FREQUENCY	A statistical expression of the percent chance of exceeding a discharge of a given magnitude in any given year. For example, a <u>100-year flood</u> has a magnitude expected to be exceeded on the average of once every hundred years. Such a <u>flood</u> has a 1 percent chance of being exceeded in any given year. Often used interchangeably with <u>RECURRENCE INTERVAL</u>.
FLOOD PLAIN	The areas adjoining a river, stream, watercourse, ocean, lake, or other body of standing water that have been or may be covered by floodwater.

FLOOD PROFILE — A graph showing the relationship of water surface elevation to location; the latter generally expressed as distance upstream from a known point along the approximate centerline of a stream of water that flows in an open channel. It is generally drawn to show surface elevation for the crest of a specific flood, but may be prepared for conditions at a given time or stage.

FLOOD STAGE — The stage or elevation at which overflow of the natural banks of a stream or body of water begins in the reach or area in which the elevation is measured.

FLOODWAY — The channel of a watercourse and those portions of the adjoining flood plain required to provide for the passage of the selected flood (normally the 100-year flood) with an insignificant increase in the flood levels above that of natural conditions. As used in the National Flood Insurance Program, floodways must be large enough to pass the 100-year flood without causing an increase in elevation of more than a specified amount (1 foot in most areas).

RECURRENCE INTERVAL — A statistical expression of the average time between floods exceeding a given magnitude (see FLOOD FREQUENCY).

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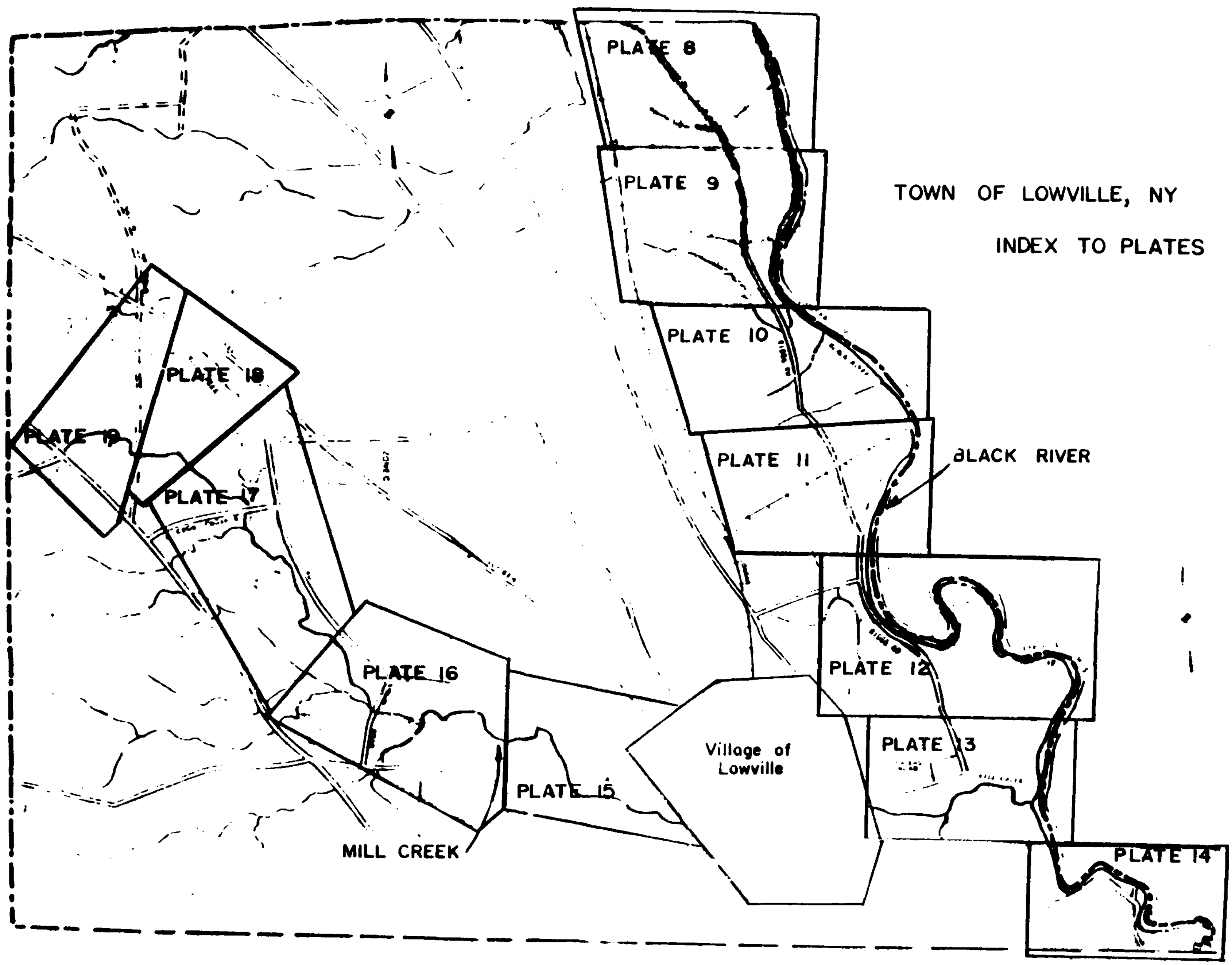
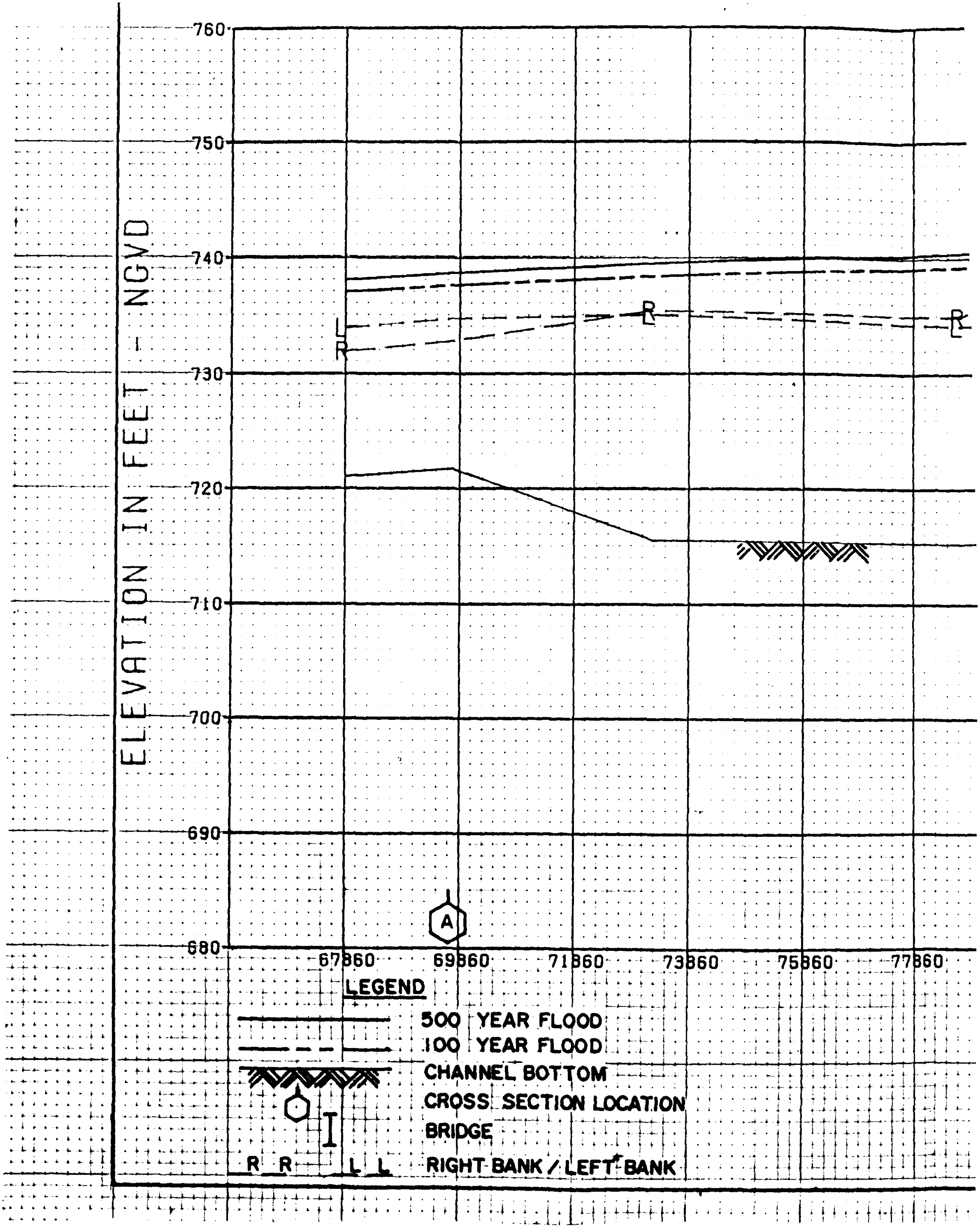
4. U.S. Department of the Interior, Geologic survey, 7.5 Minute Series Topographic Maps, Scale 1:24,000, Lowville, N.Y., Contour Interval 10 feet, 1966; West Lowville, N.Y., Contour Interval 20 feet, 1943; New Boston, N.Y., Contour Interval 20 feet, 1943.

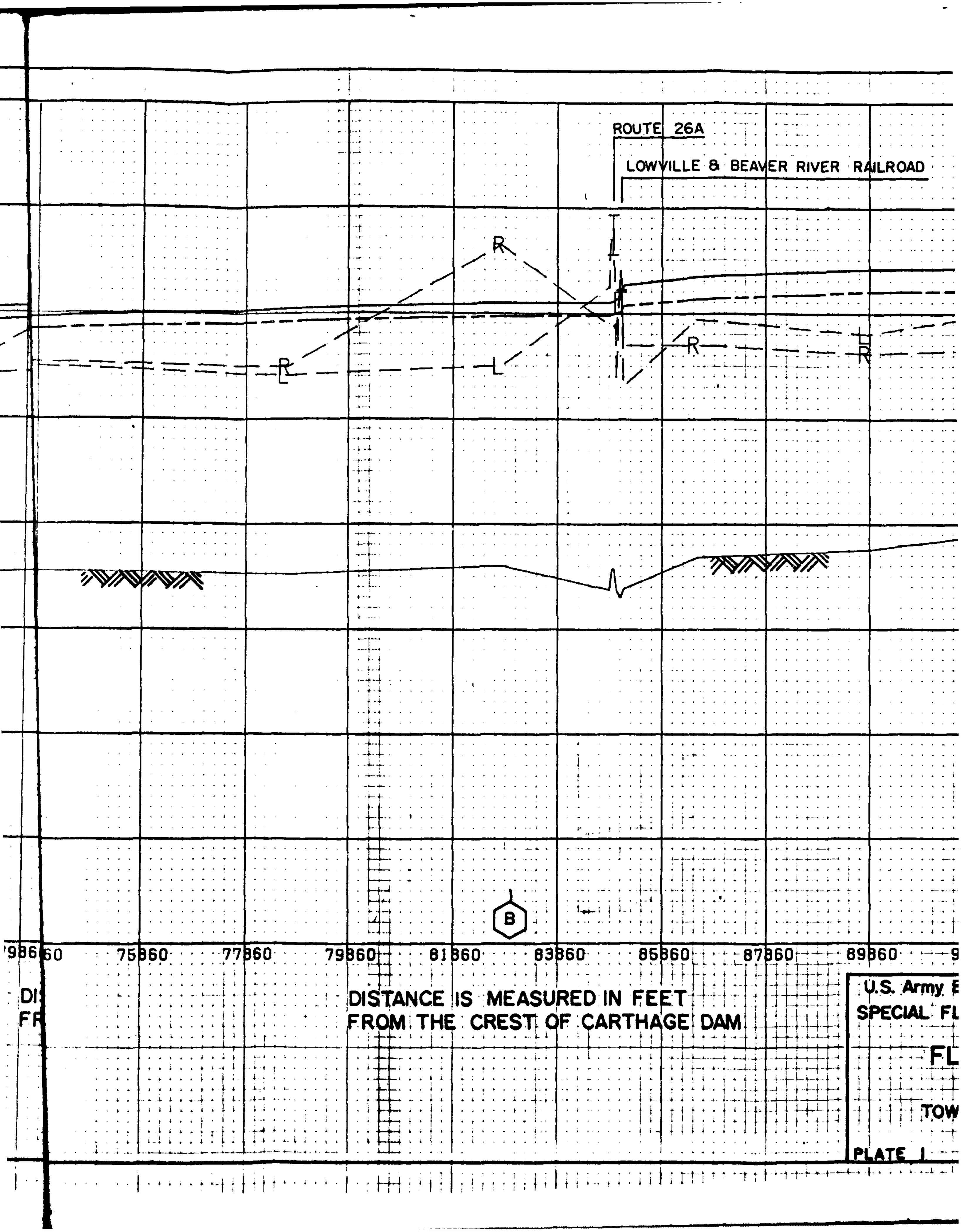
5. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles Generalized Computer Program, Davis, California, 1974.

6. U.S. Army Corps of Engineers, Buffalo District, Special Flood Hazard Evaluation, Village of Lowville, N.Y., Buffalo, N.Y., 1990.

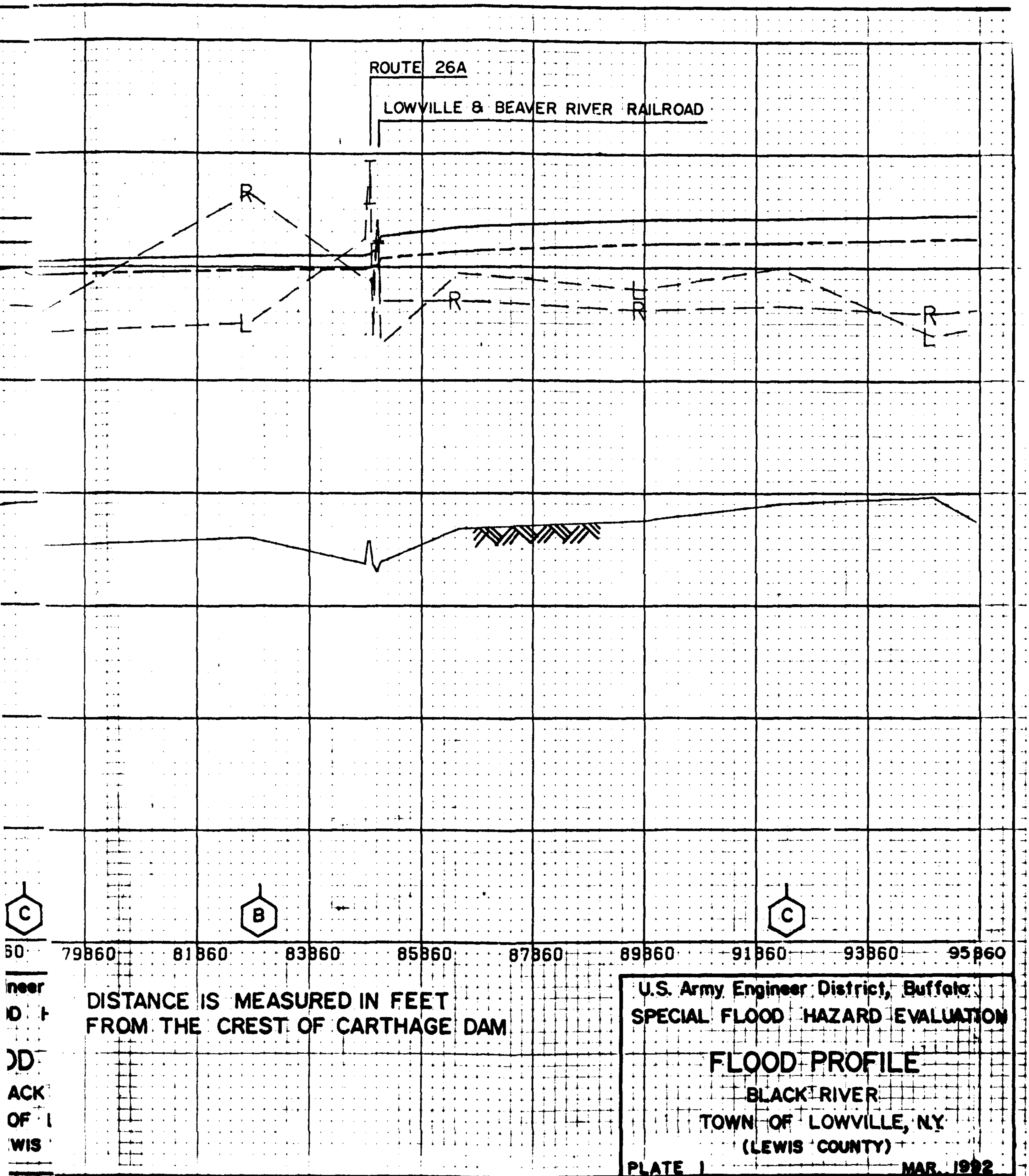

TOWN OF LOWVILLE, NY
INDEX TO PLATES
PLATE 8
PLATE 9
PLATE 10
PLATE 11
PLATE 12
PLATE 13
PLATE 14
PLATE 15
PLATE 16
PLATE 17
PLATE 18
PLATE 19
BLACK RIVER
MILL CREEK
Village of Lowville



ELEVATION IN FEET - NGVD
760
750
740
730
720
710
700
690
680
R
L
A
67860
69860
71860
73860
75860
77860
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
R R L L
RIGHT BANK / LEFT BANK



ROUTE 26A
LOWVILLE & BEAVER RIVER RAILROAD
R
L
R
L
L
R
L
R
B
73860
75860
77860
79860
81860
83860
85860
87860
89860
DI
FR
DISTANCE IS MEASURED IN FEET
FROM THE CREST OF CARTHAGE DAM
U.S. Army
SPECIAL FL
FL
TOW
PLATE I

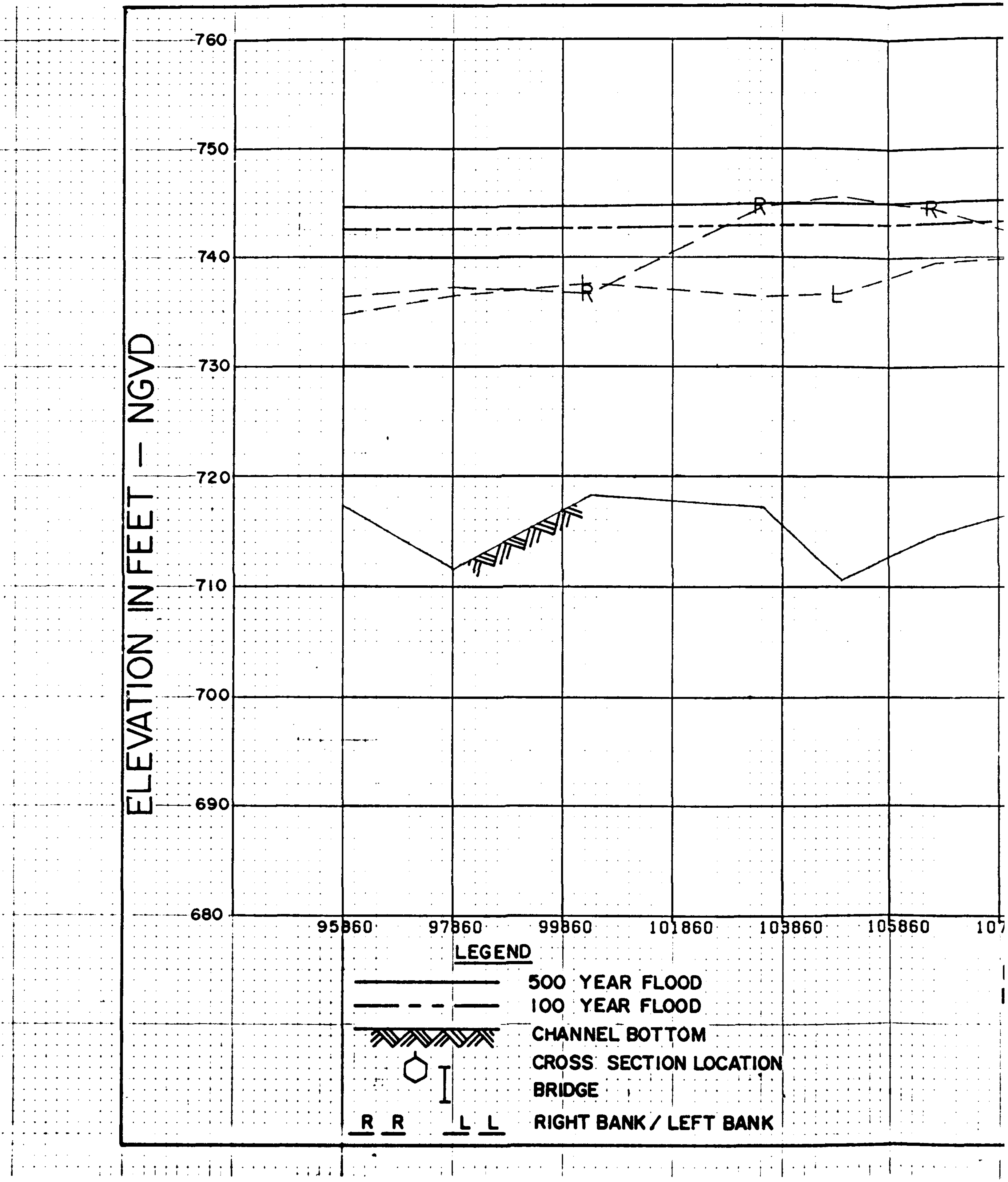


U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

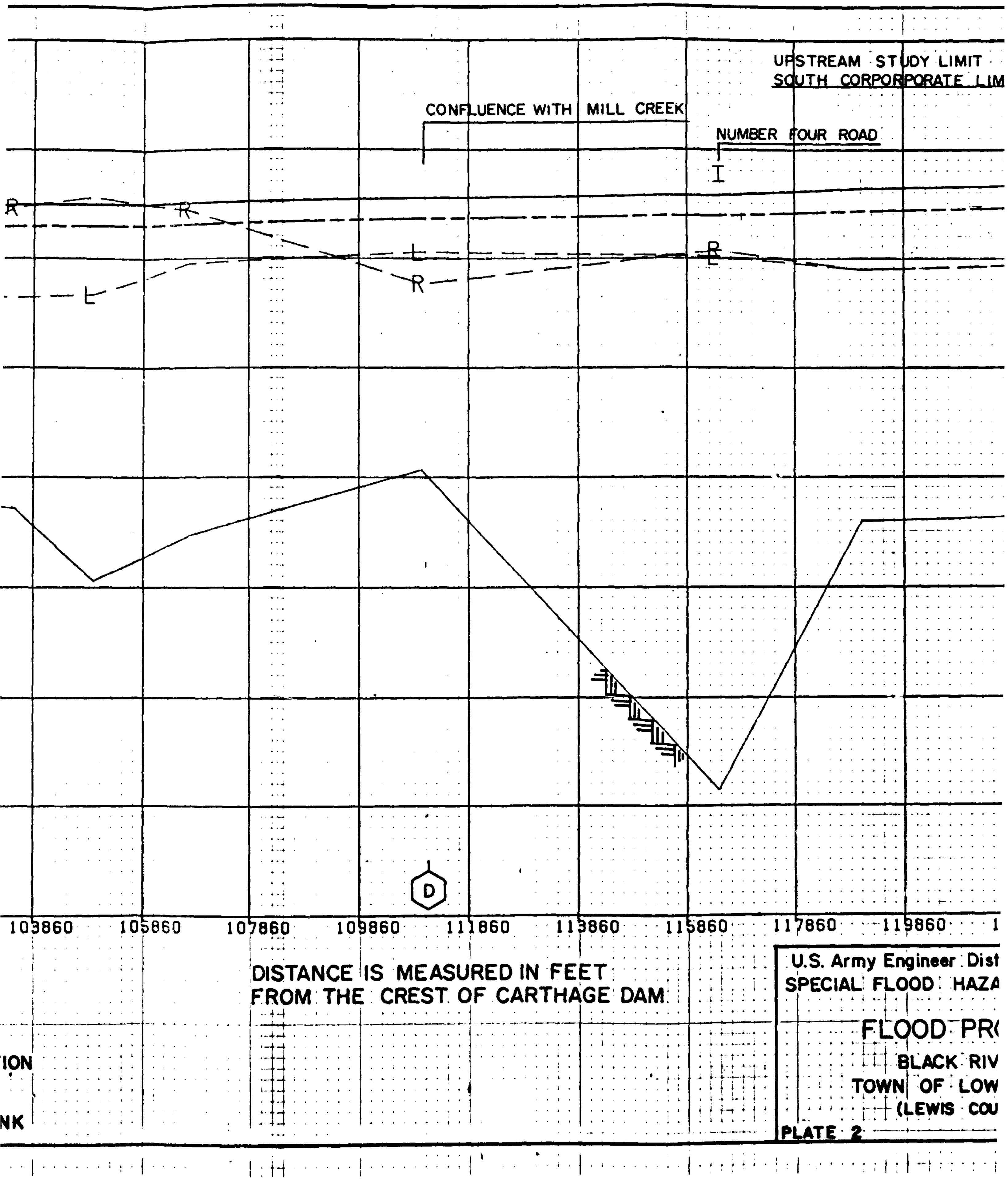
FLOOD PROFILE

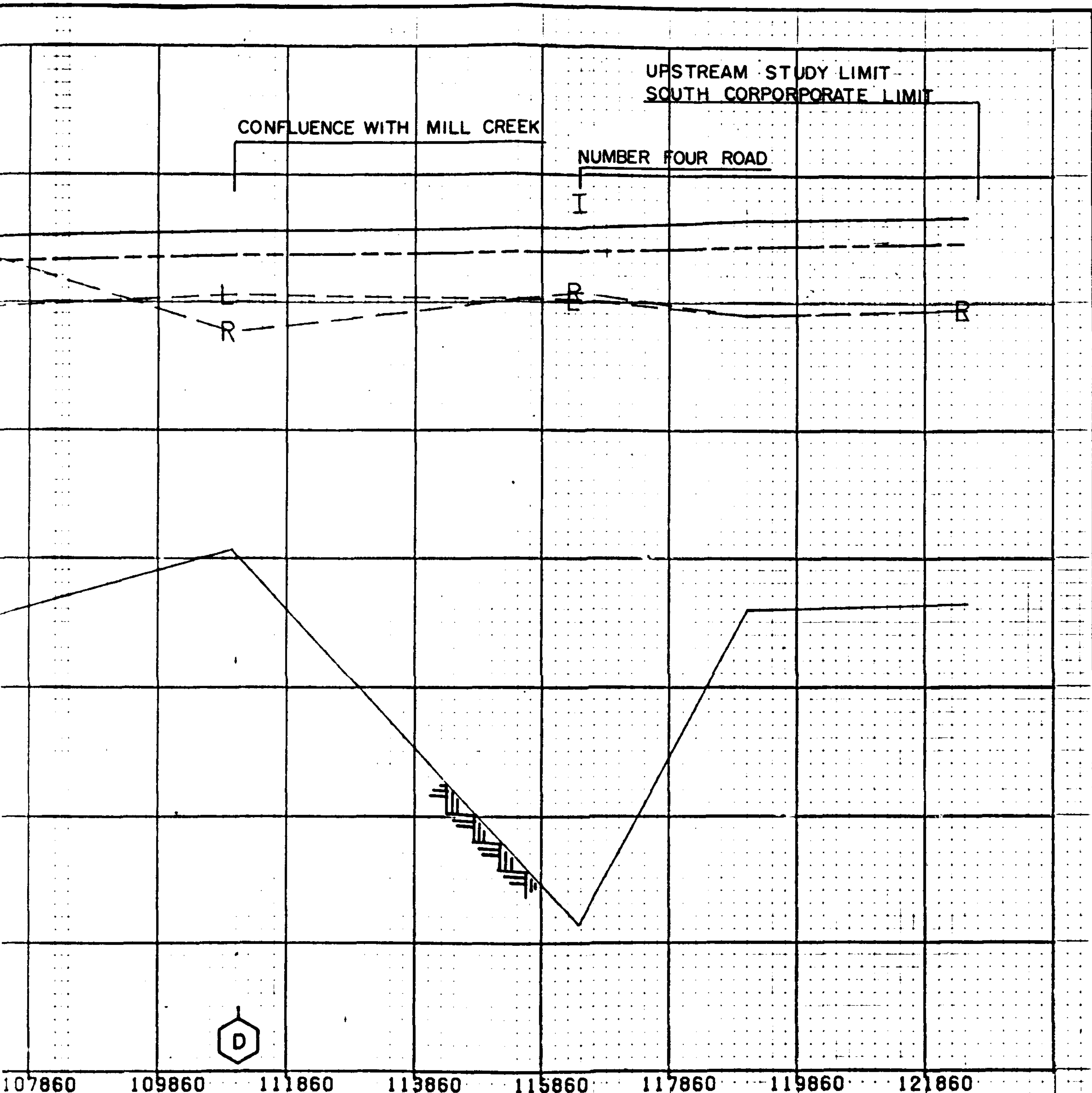
BLACK RIVER
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

PLATE 1 MAR. 1992



ELEVATION IN FEET — NGVD
760
750
740
730
720
710
700
690
680
95860
97860
99860
101860
103860
105860
R
R
R
L
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
R R L L RIGHT BANK / LEFT BANK


UPSTREAM STUDY LIMIT
SOUTH CORPORPORATE LIM
CONFLUENCE WITH MILL CREEK
NUMBER FOUR ROAD
D
103860 105860 107860 109860 111860 113860 115860 117860 119860
DISTANCE IS MEASURED IN FEET
FROM THE CREST OF CARTHAGE DAM
ION
NK
U.S. Army Engineer Dist
SPECIAL FLOOD HAZA
FLOOD PR
BLACK RIV
TOWN OF LOW
(LEWIS COU
PLATE 2



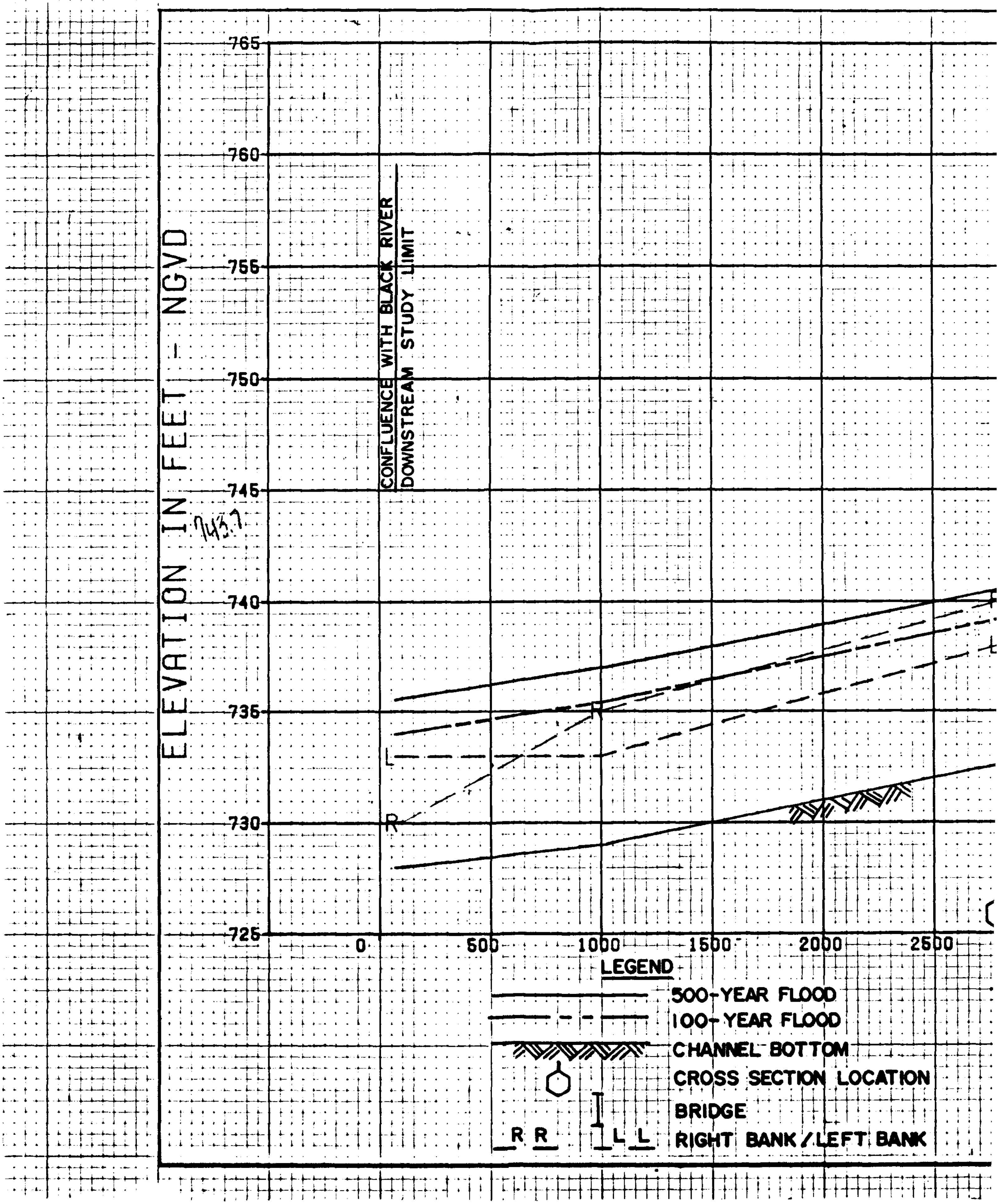
DISTANCE IS MEASURED IN FEET
FROM THE CREST OF CARTHAGE DAM

U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

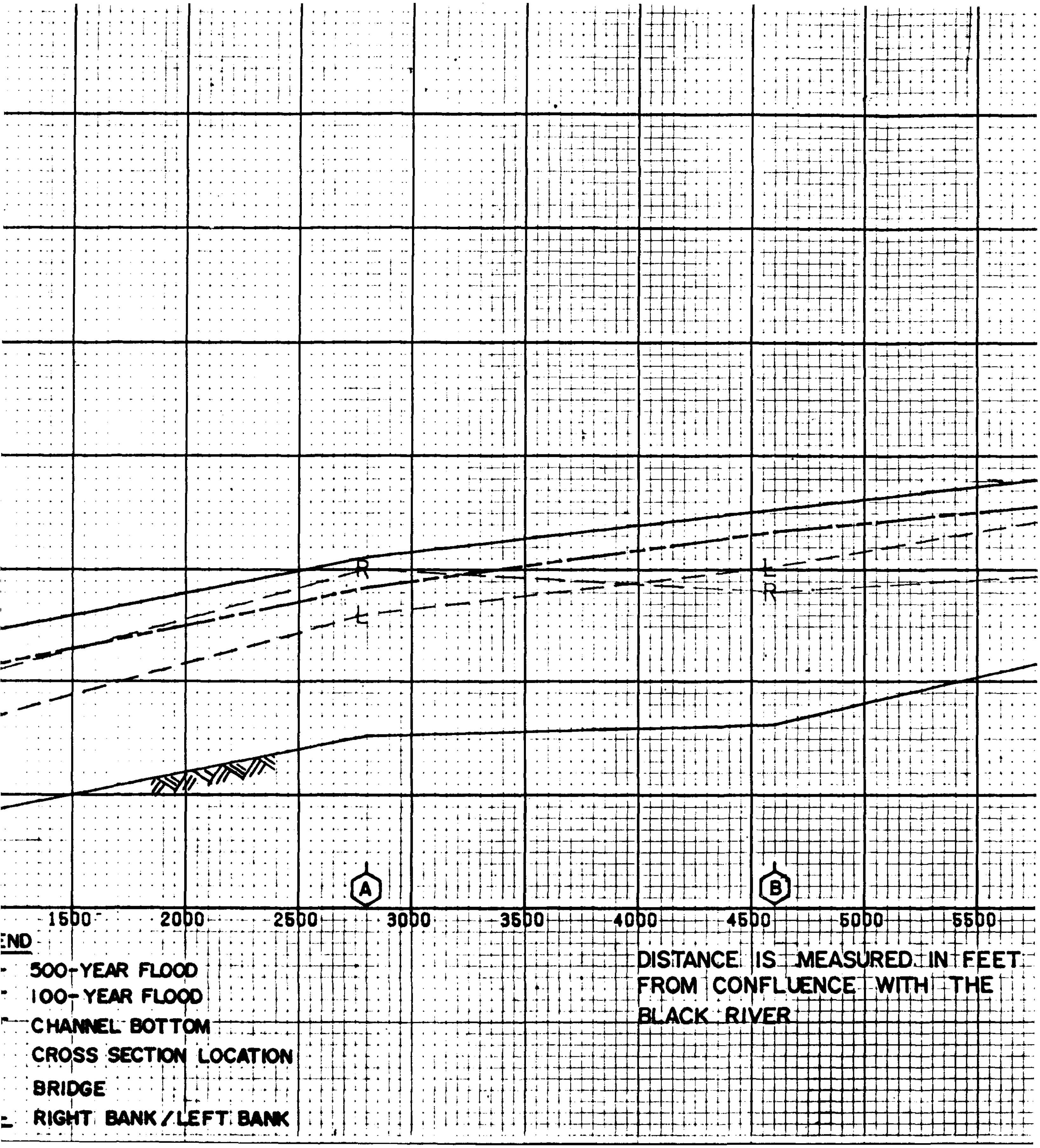
FLOOD PROFILE

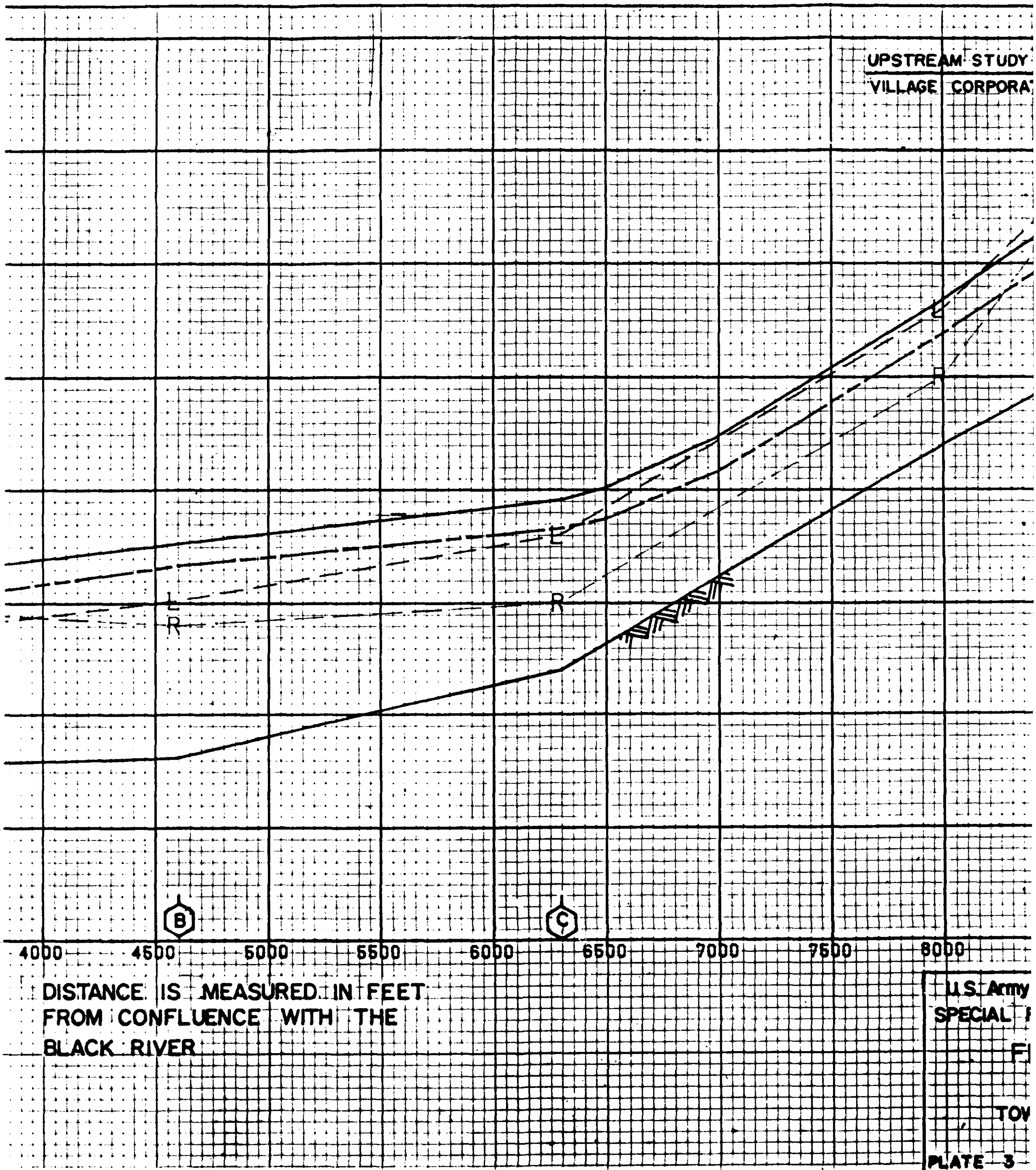
BLACK RIVER
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

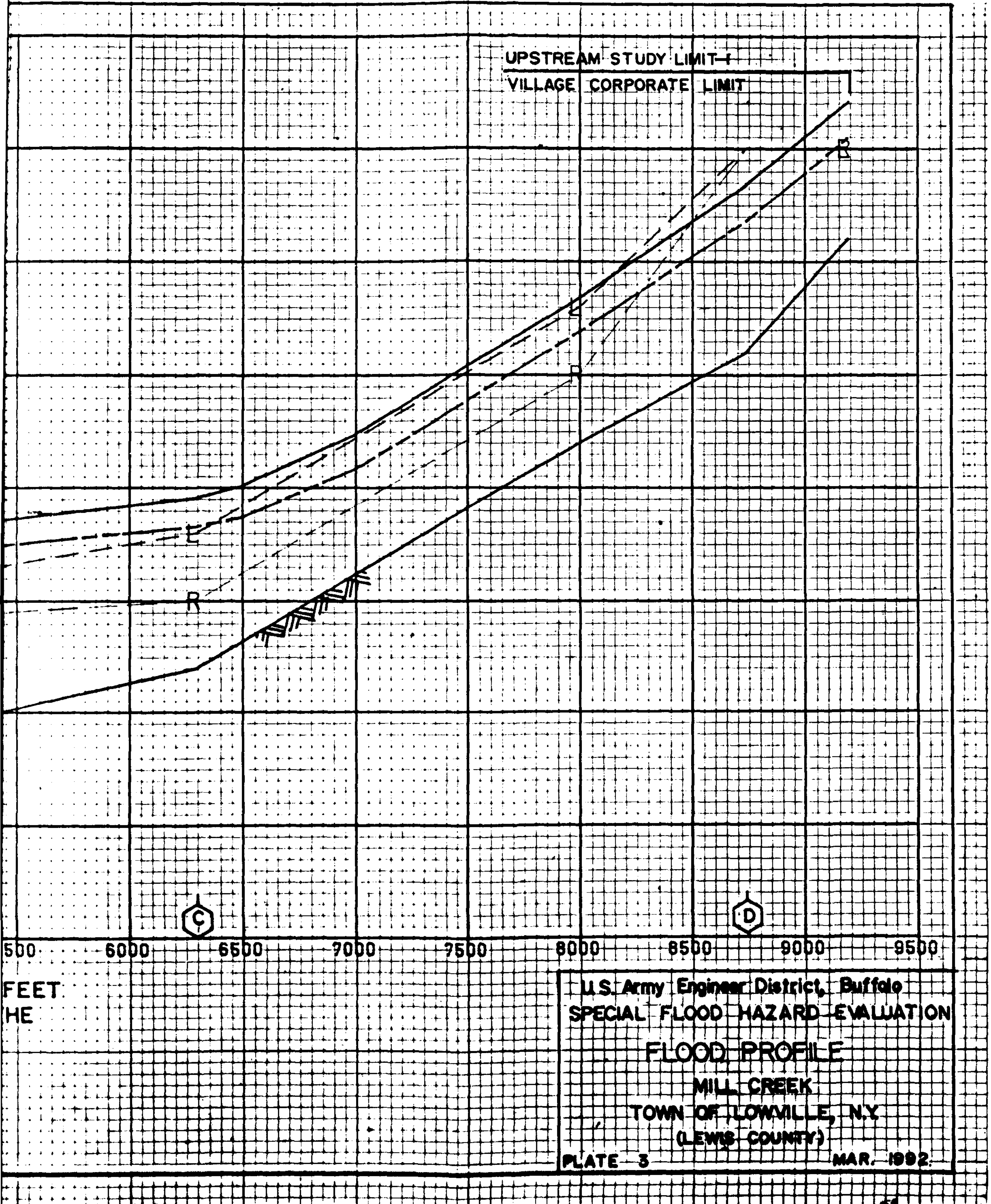
PLATE 2 MAR. 1992

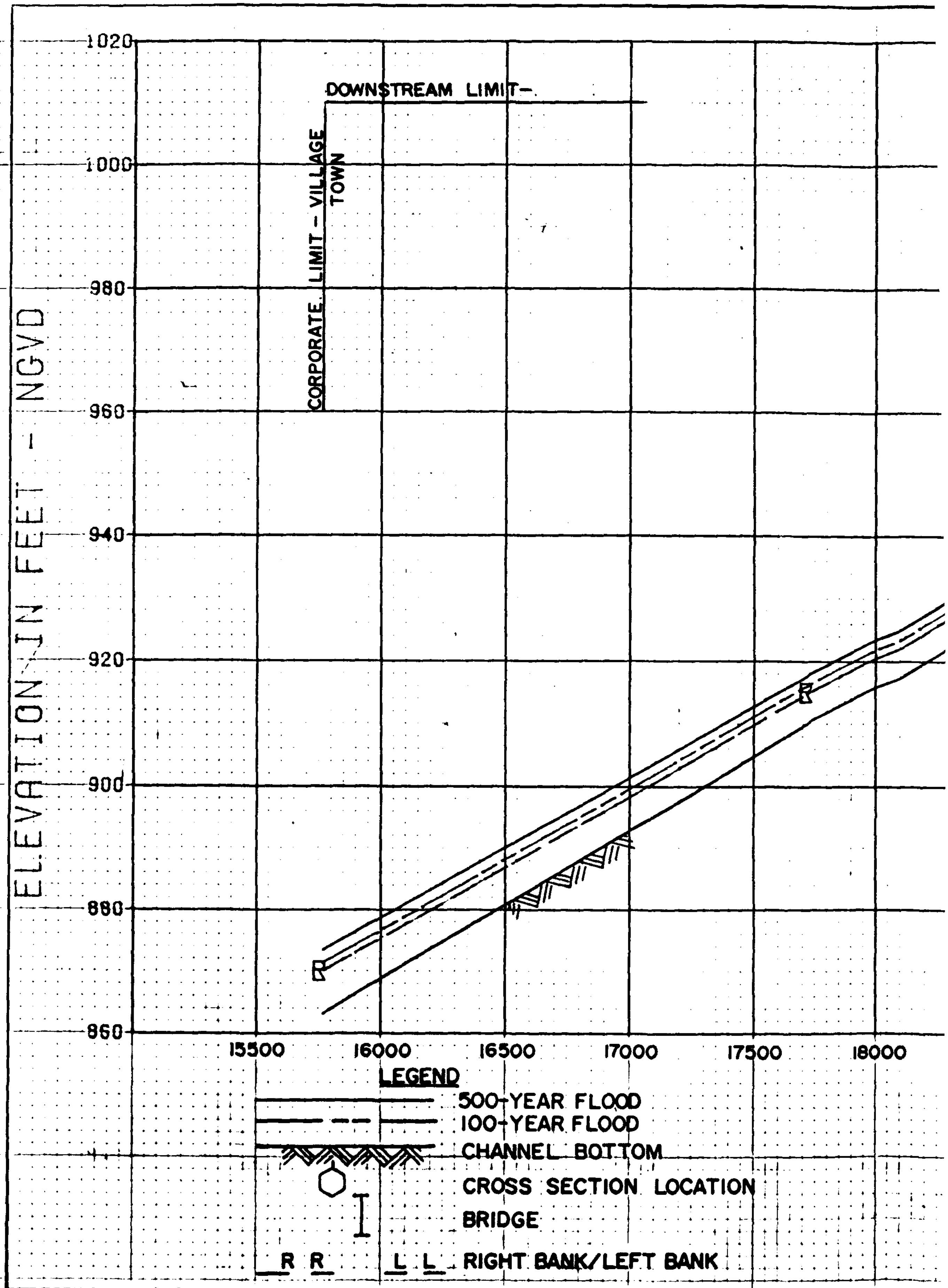


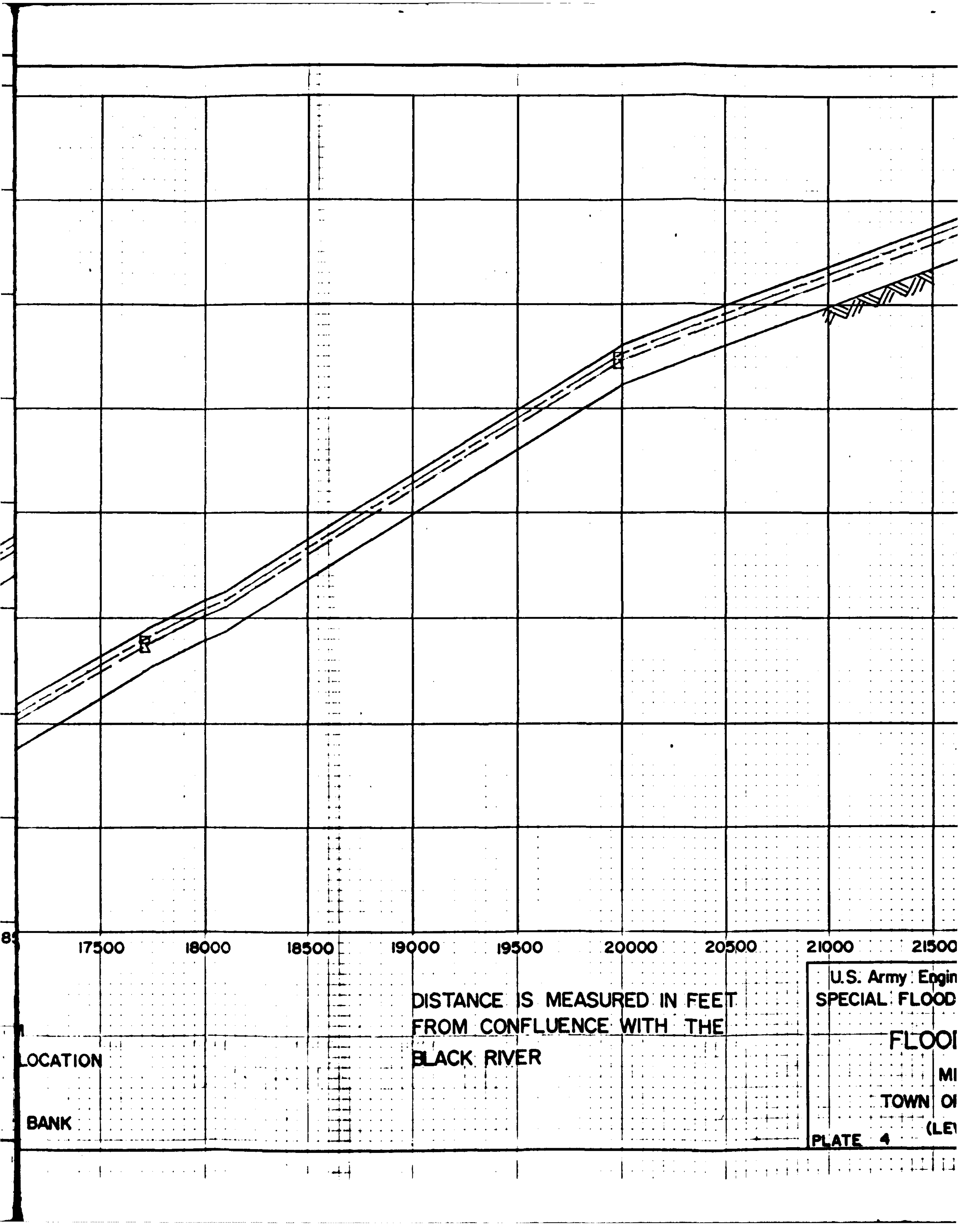
ELEVATION IN FEET - NGVD
765
760
755
750
745
740
735
730
725
743.7
CONFLUENCE WITH BLACK RIVER
DOWNSTREAM STUDY LIMIT
R
L
0
500
1000
1500
2000
2500
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
RIGHT BANK / LEFT BANK


R
L
L
R
A
B
1500
2000
2500
3000
3500
4000
4500
5000
5500
END
500-YEAR FLOOD
100-YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
RIGHT BANK / LEFT BANK
DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER

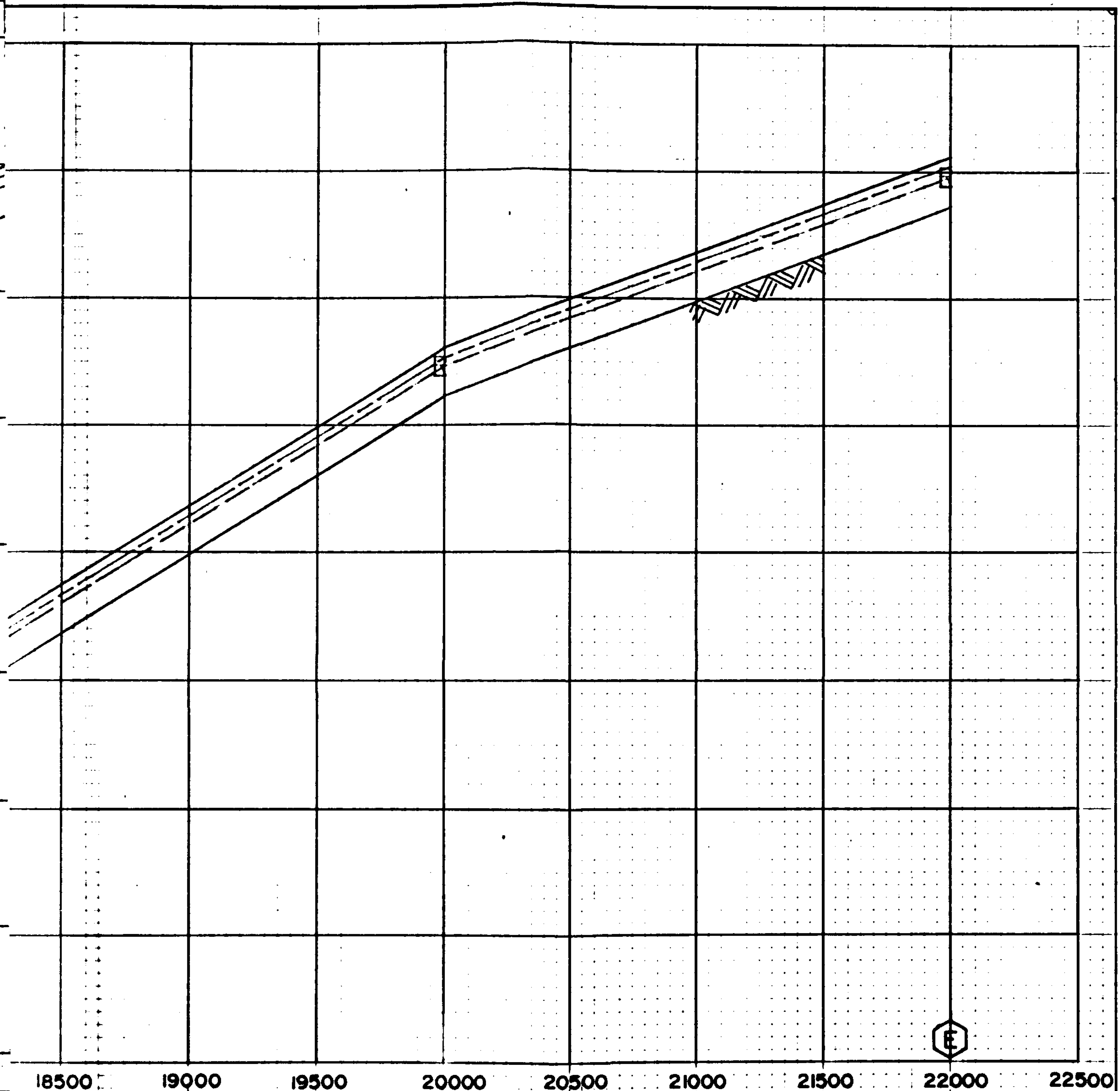

UPSTREAM STUDY
VILLAGE CORPORA
L
R
L
R
L
R
B
C
4000
4500
5000
5500
6000
6500
7000
7500
8000
DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER
U.S. Army
SPECIAL
F
TOV
PLATE 3


UPSTREAM STUDY LIMIT
VILLAGE CORPORATE LIMIT
E
R
C
D
500
6000
6500
7000
7500
8000
8500
9000
9500
FEET
HE
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION
FLOOD PROFILE
MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)
PLATE 3
MAR. 1992


DOWNSTREAM LIMIT-
CORPORATE LIMIT - VILLAGE
TOWN
ELEVATION IN FEET - NGVD
1020
1000
980
960
940
920
900
880
860
15500
16000
16500
17000
17500
18000
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
R R L L RIGHT BANK/LEFT BANK



17500
18000
18500
19000
19500
20000
20500
21000
21500
DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER
LOCATION
BANK
U.S. Army Engin
SPECIAL FLOOD
FLOO
MI
TOWN OI
(LE
PLATE 4



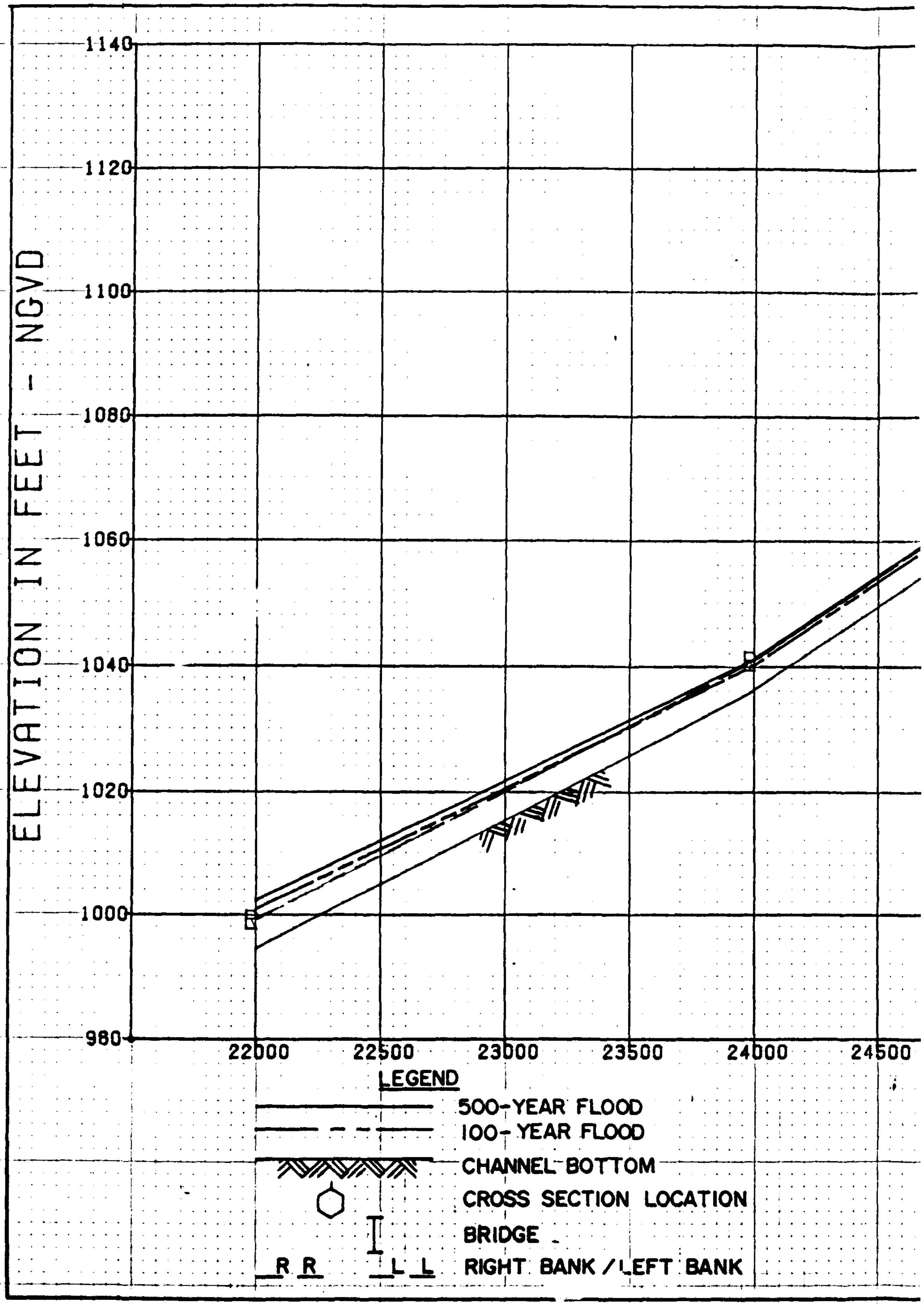
DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER

U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

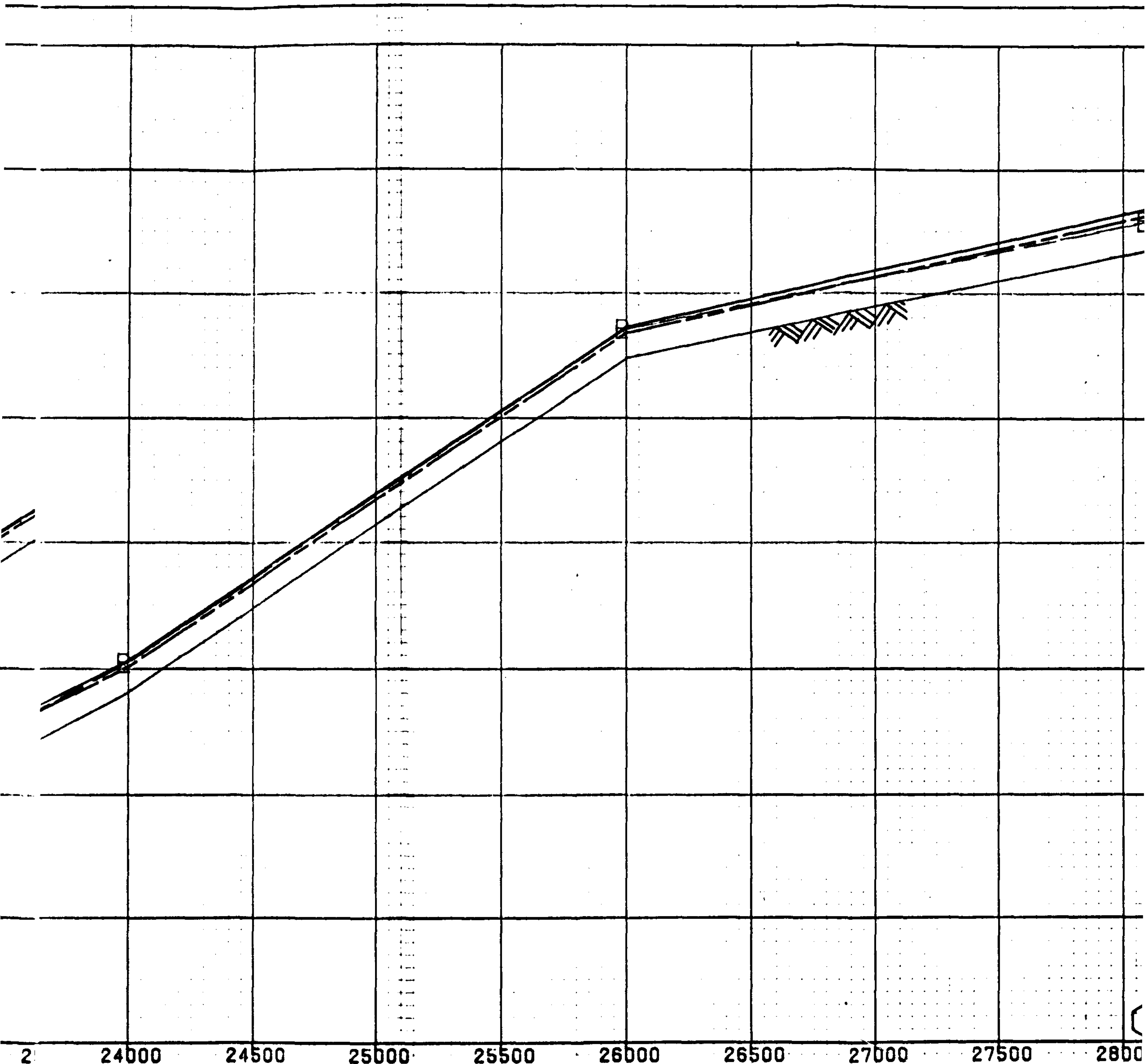
FLOOD PROFILE

MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

PLATE 4 MAR. 1992



ELEVATION IN FEET - NGVD
1140
1120
1100
1080
1060
1040
1020
1000
980
22000
22500
23000
23500
24000
24500
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
R R L L RIGHT BANK / LEFT BANK



DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER

)CATION

T BANK

U.S. Army Engi
SPECIAL FLOO

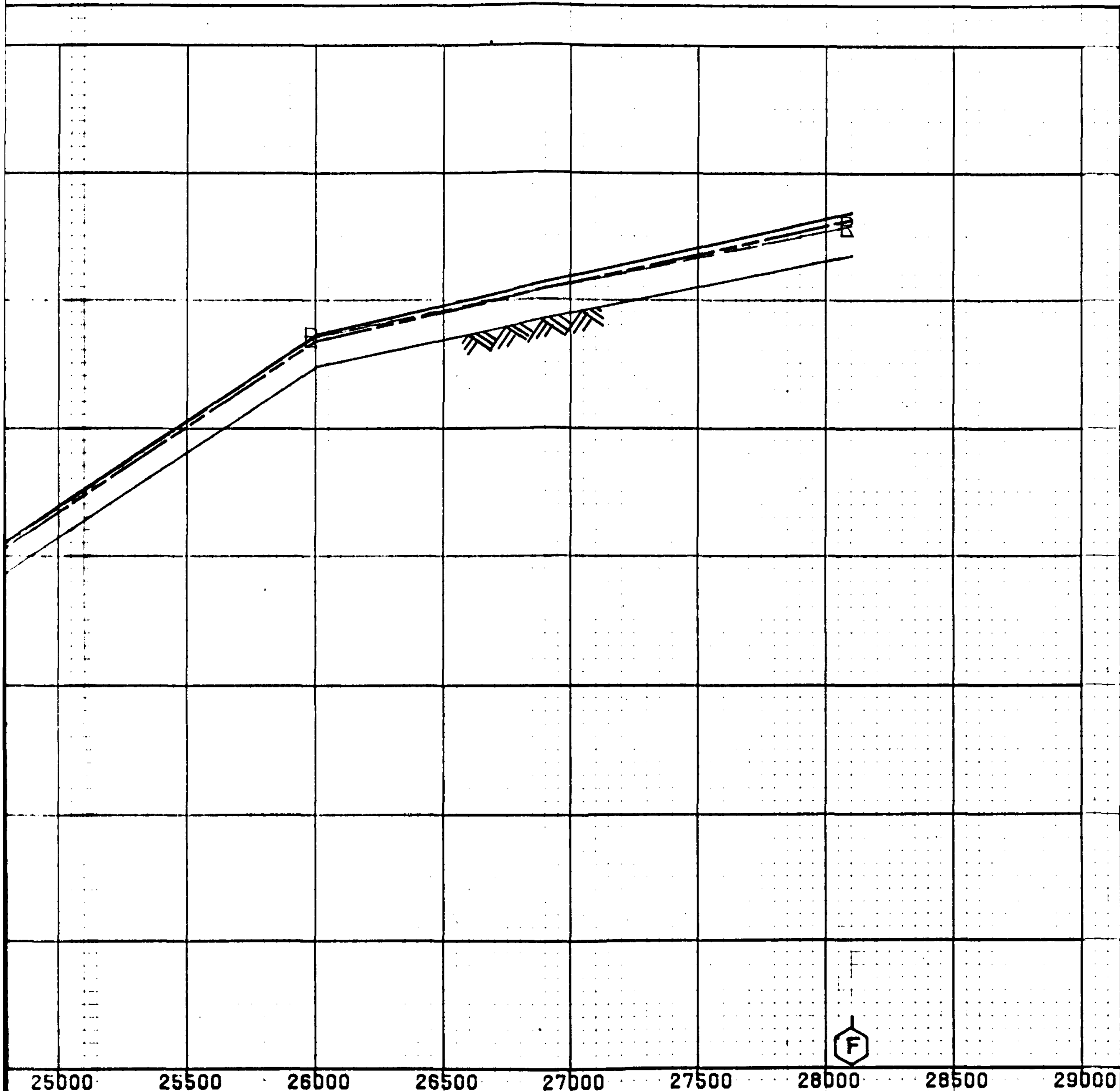
FLOO

M

TOWN O

(LE\

PLATE 5



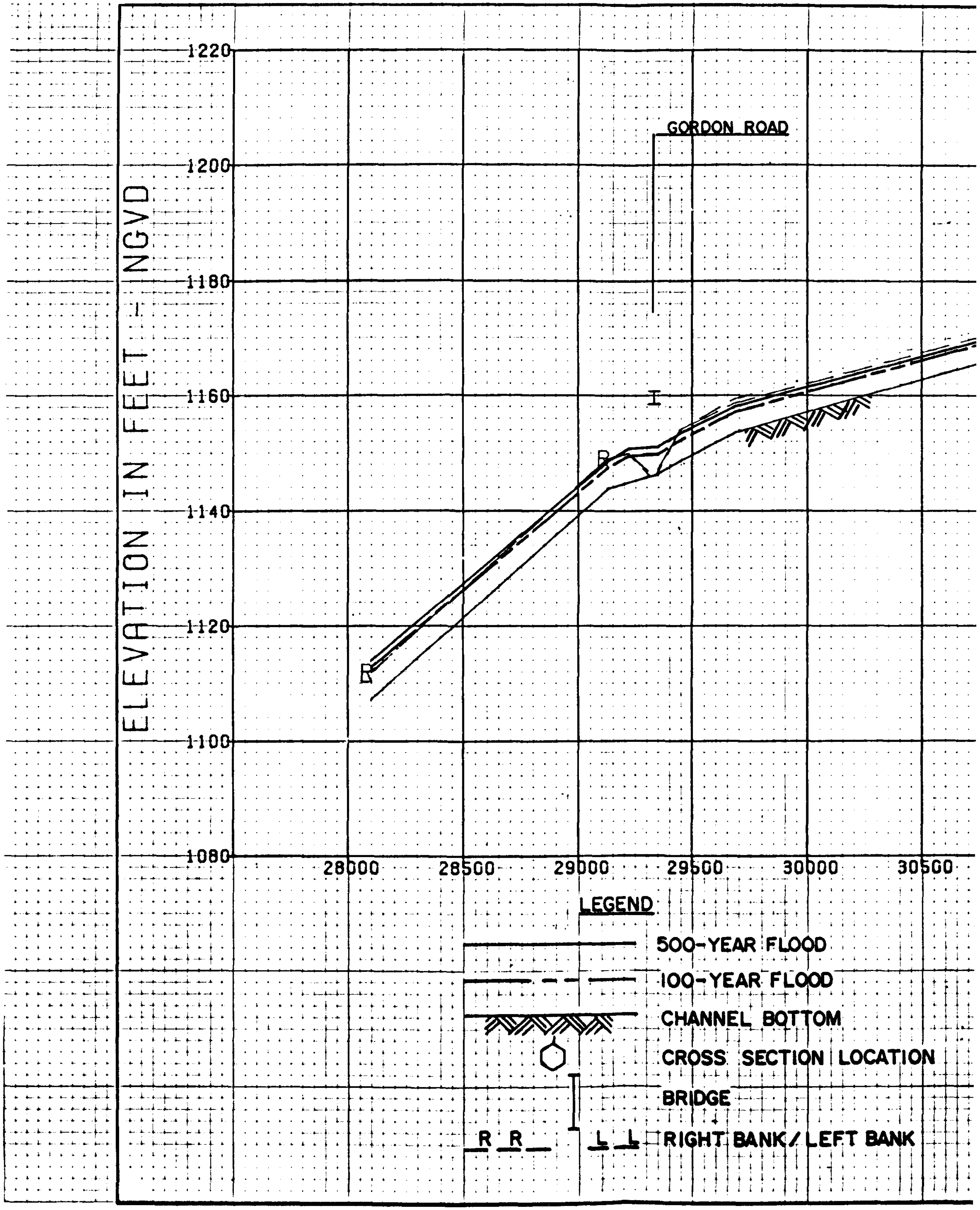
DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER

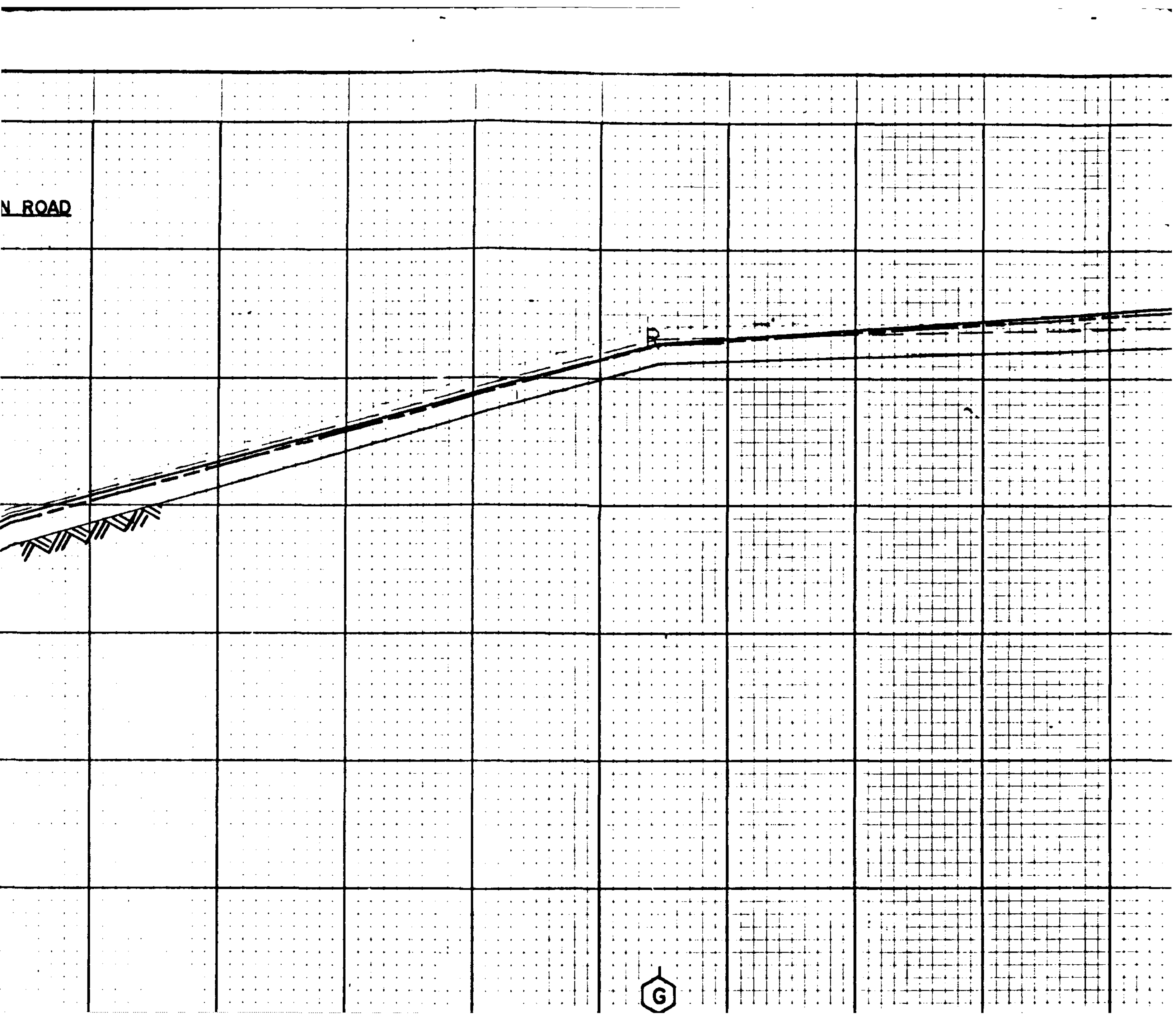
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

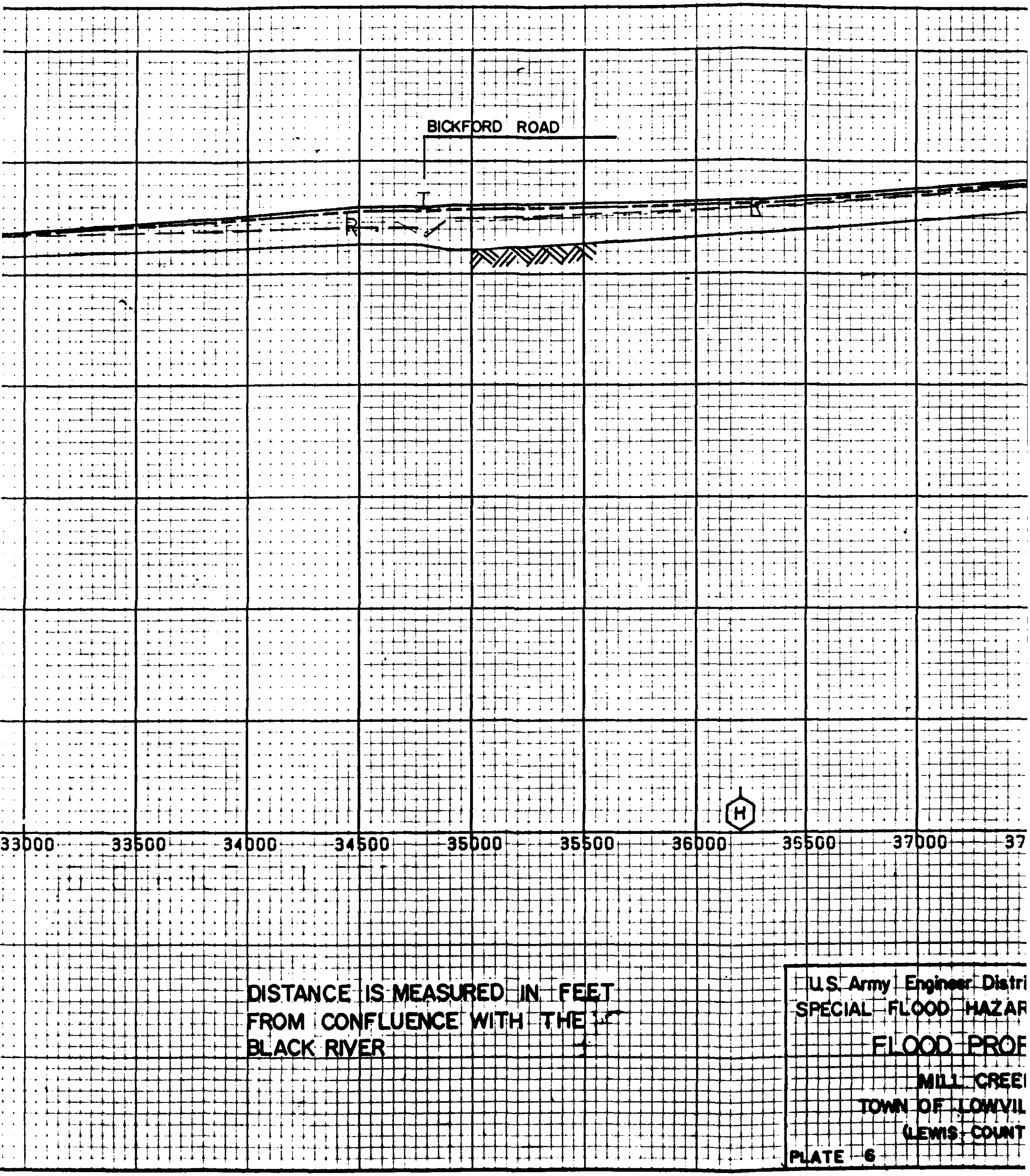
FLOOD PROFILE

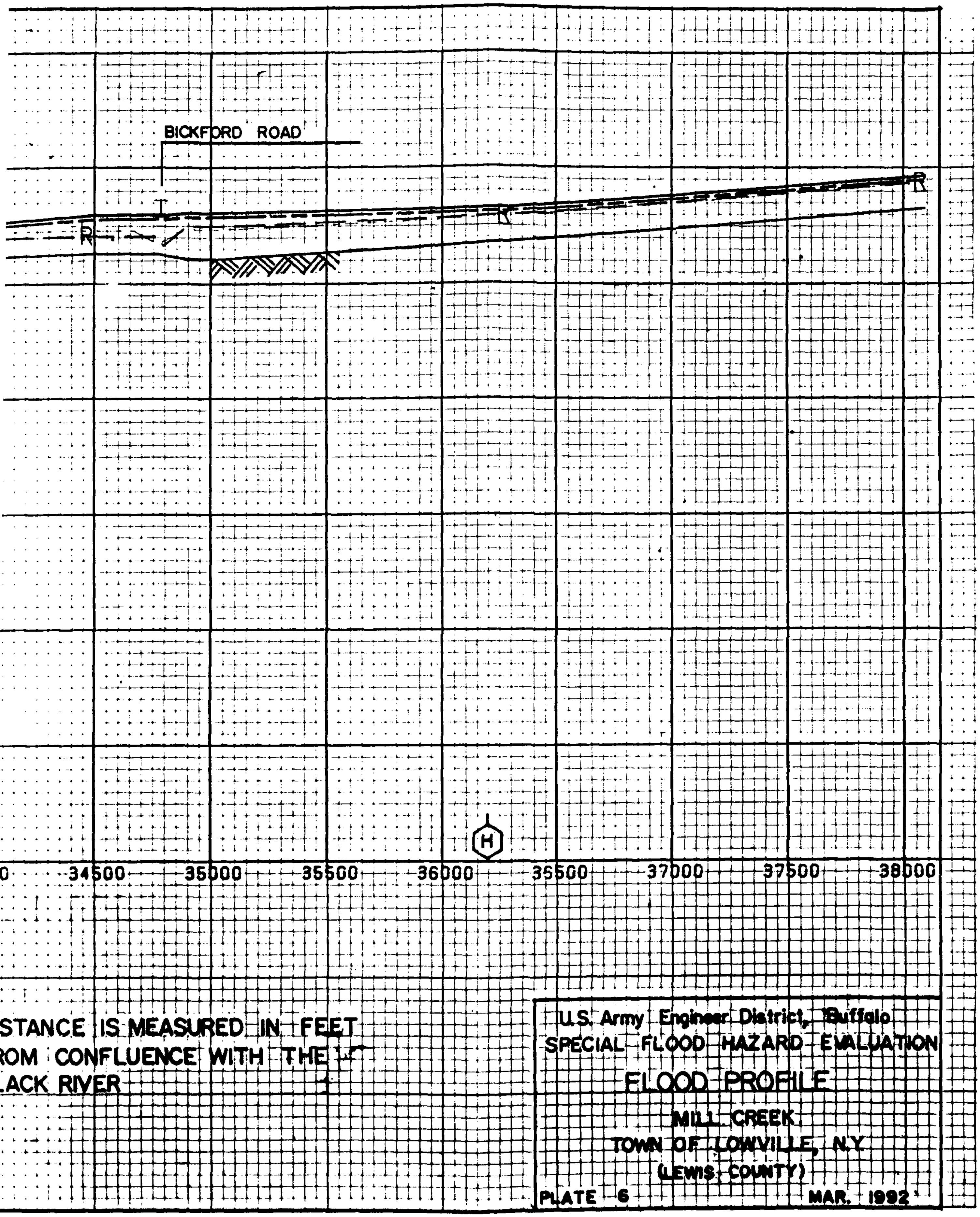
MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

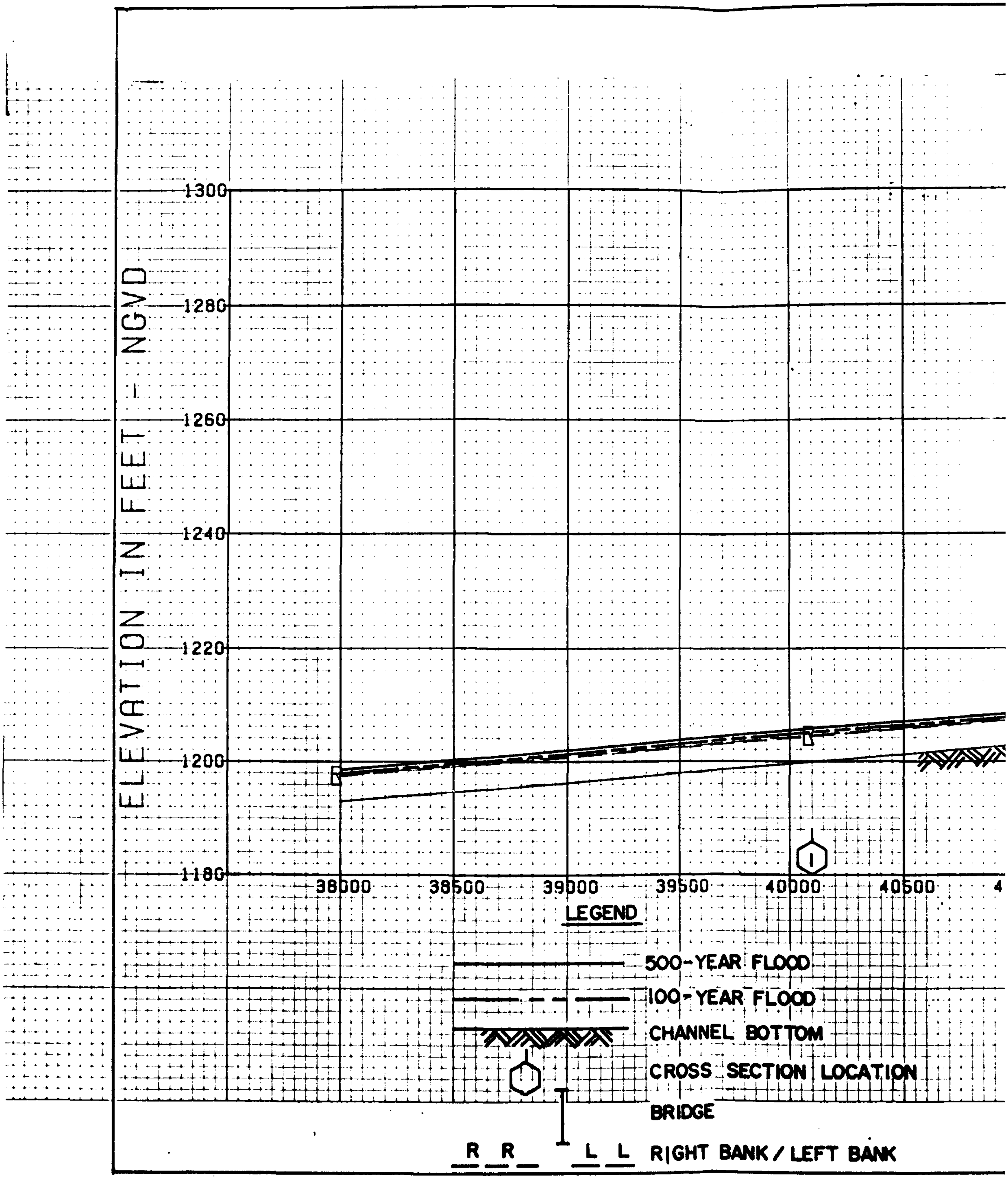
PLATE 5 MAR. 1992


ELEVATION IN FEET - NGVD
1220
1200
1180
1160
1140
1120
1100
1080
28000
28500
29000
29500
30000
30500
GORDON ROAD
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
RIGHT BANK / LEFT BANK

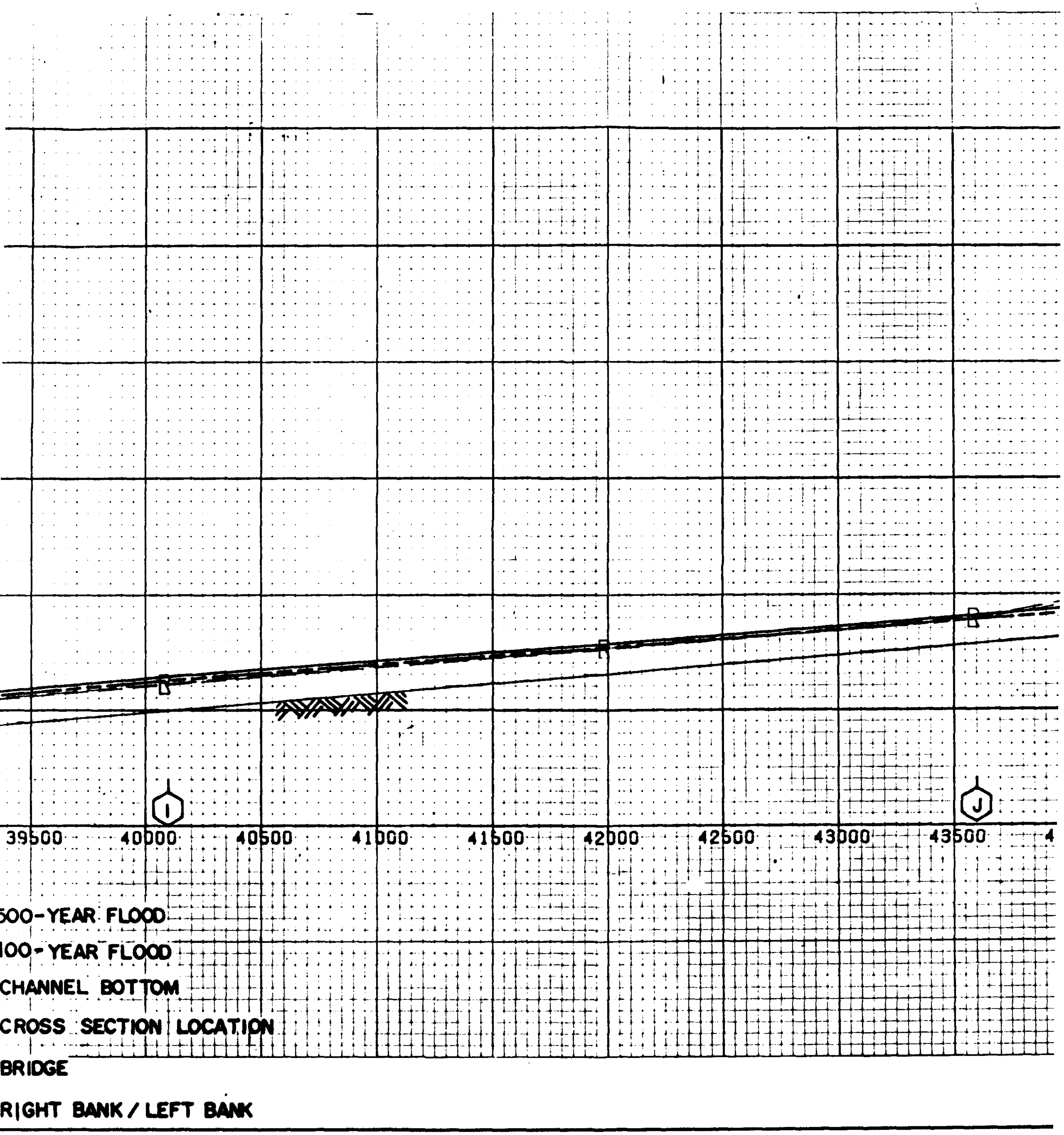

N ROAD
G


BICKFORD ROAD
33000
33500
34000
34500
35000
35500
36000
36500
37000
DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER
U.S. Army Engineer Distri
SPECIAL FLOOD HAZAR
FLOOD PROF
MILL CREE
TOWN OF LOWVIL
(LEWIS COUNT
PLATE 6

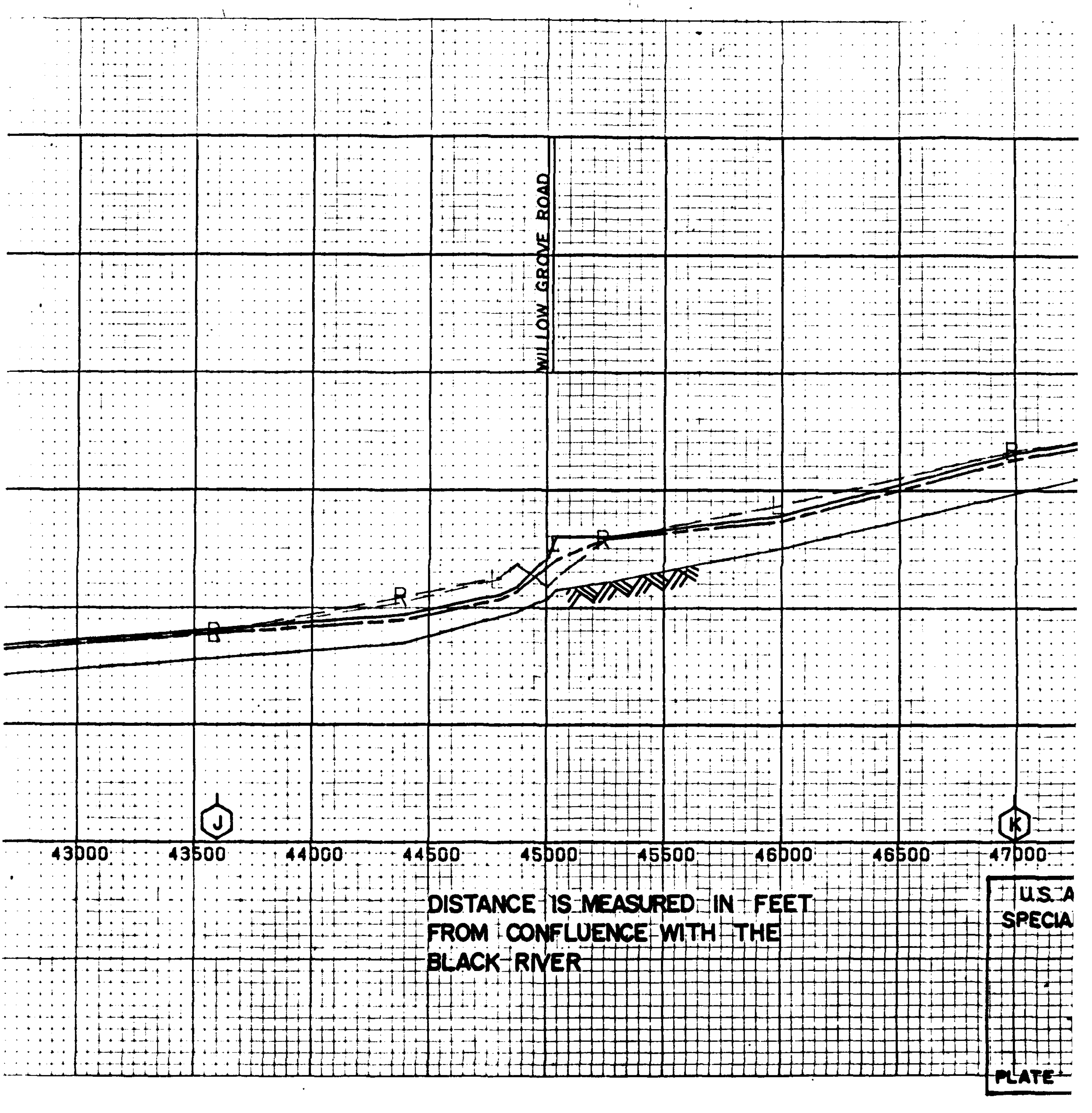

BICKFORD ROAD
34500
35000
35500
36000
36500
37000
37500
38000
STANCE IS MEASURED IN FEET
ROM CONFLUENCE WITH THE
LACK RIVER
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION
FLOOD PROFILE
MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)
PLATE 6
MAR. 1992

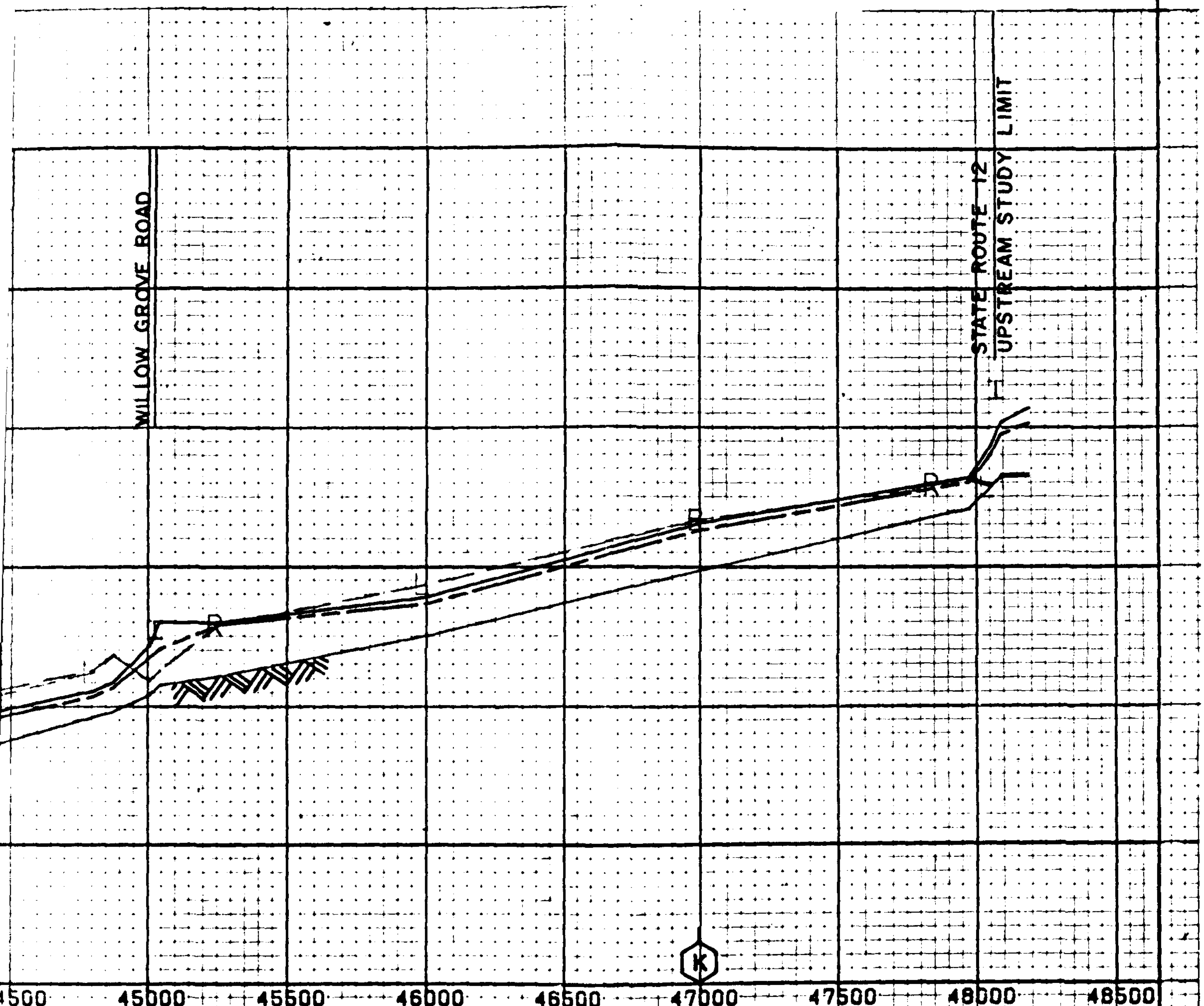


ELEVATION IN FEET - NGVD
1300
1280
1260
1240
1220
1200
1180
38000
38500
39000
39500
40000
40500
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
R R L L RIGHT BANK / LEFT BANK



I
J
39500
40000
40500
41000
41500
42000
42500
43000
43500
500-YEAR FLOOD
100-YEAR FLOOD
CHANNEL BOTTOM
CROSS SECTION LOCATION
BRIDGE
RIGHT BANK / LEFT BANK


WILLOW GROVE ROAD
J
K
43000
43500
44000
44500
45000
45500
46000
46500
47000
DISTANCE IS MEASURED IN FEET
FROM CONFLUENCE WITH THE
BLACK RIVER
U.S. A
SPECIA
PLATE



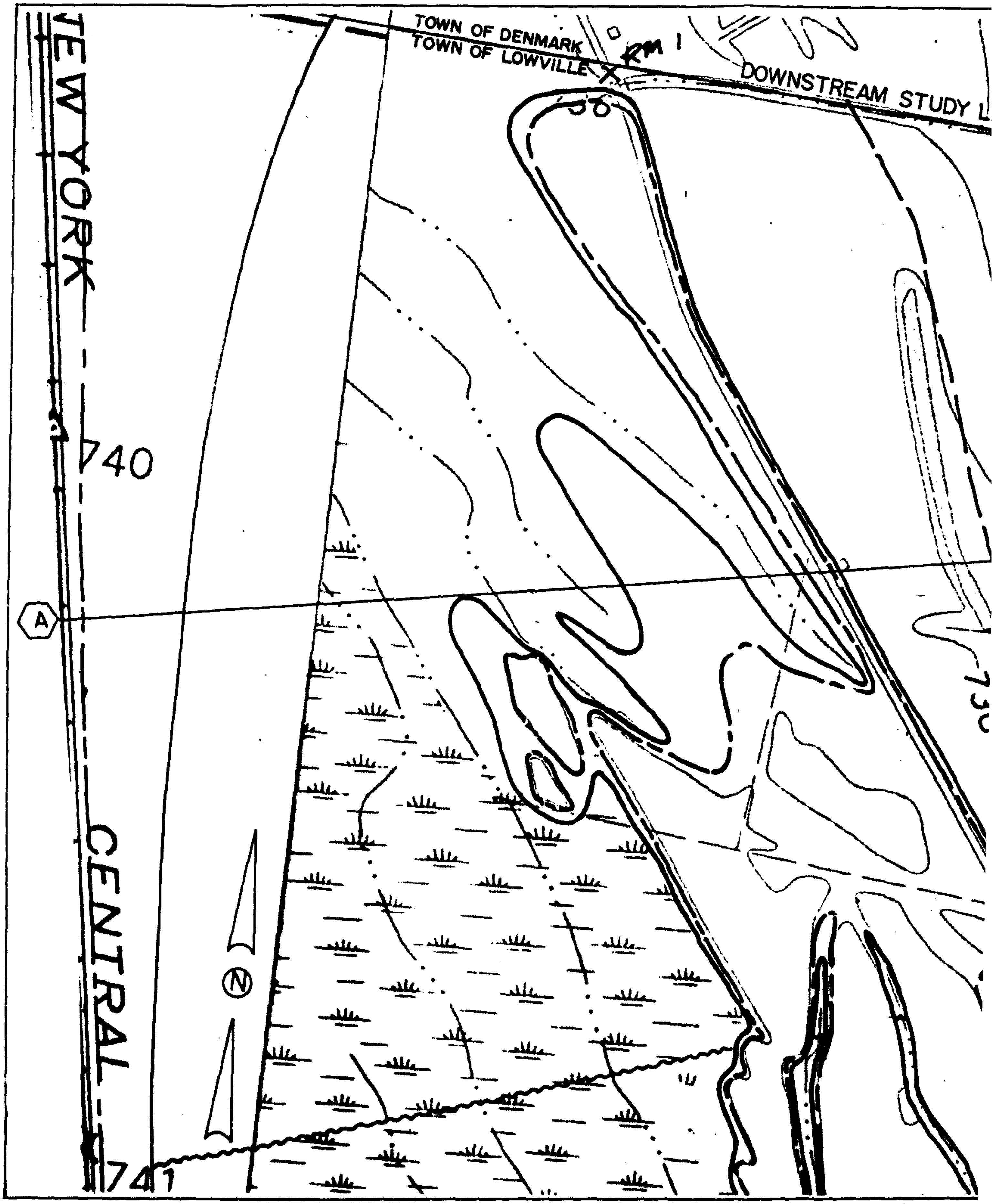
DISTANCE IS MEASURED IN FEET FROM CONFLUENCE WITH THE BLACK RIVER

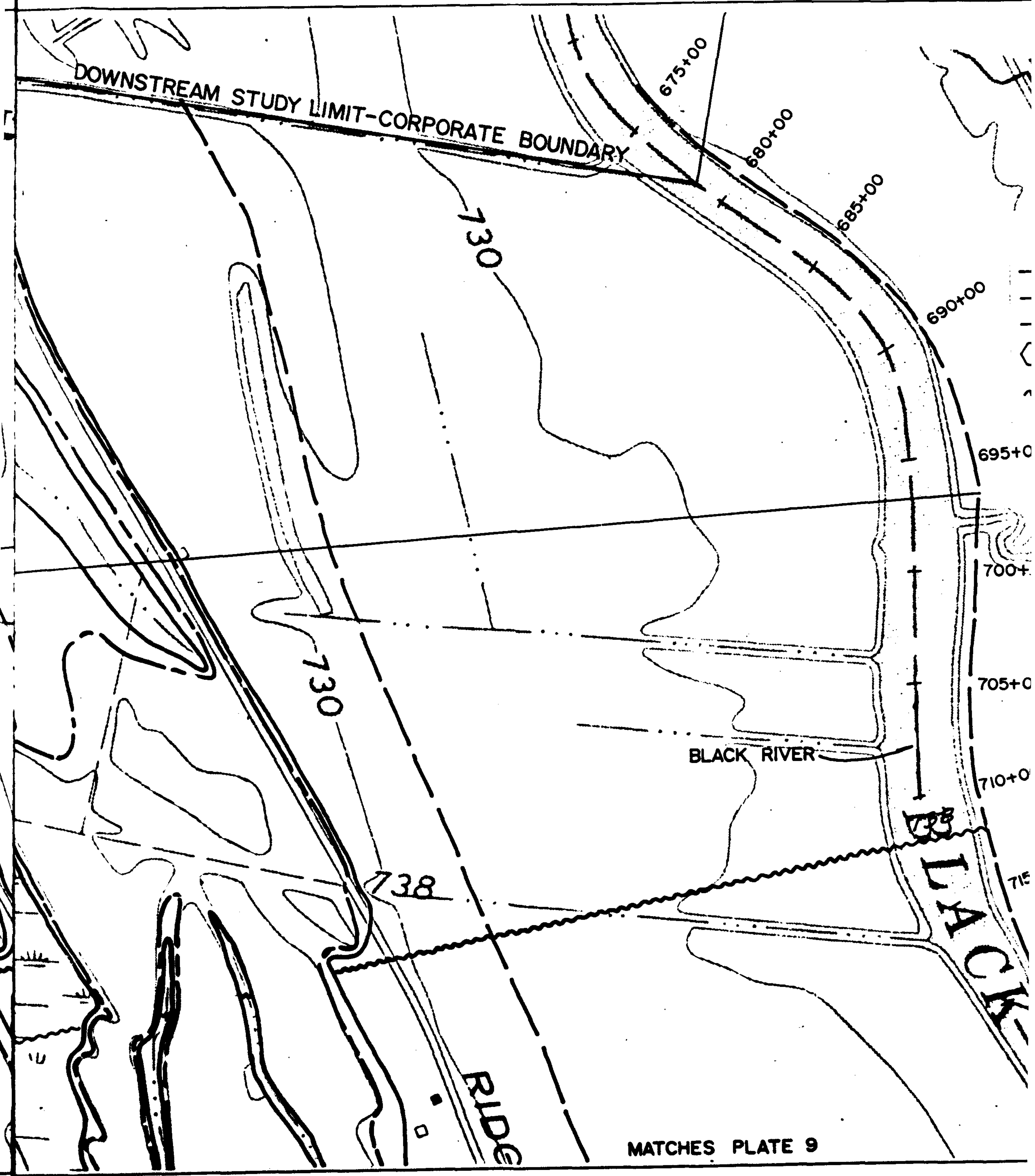
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

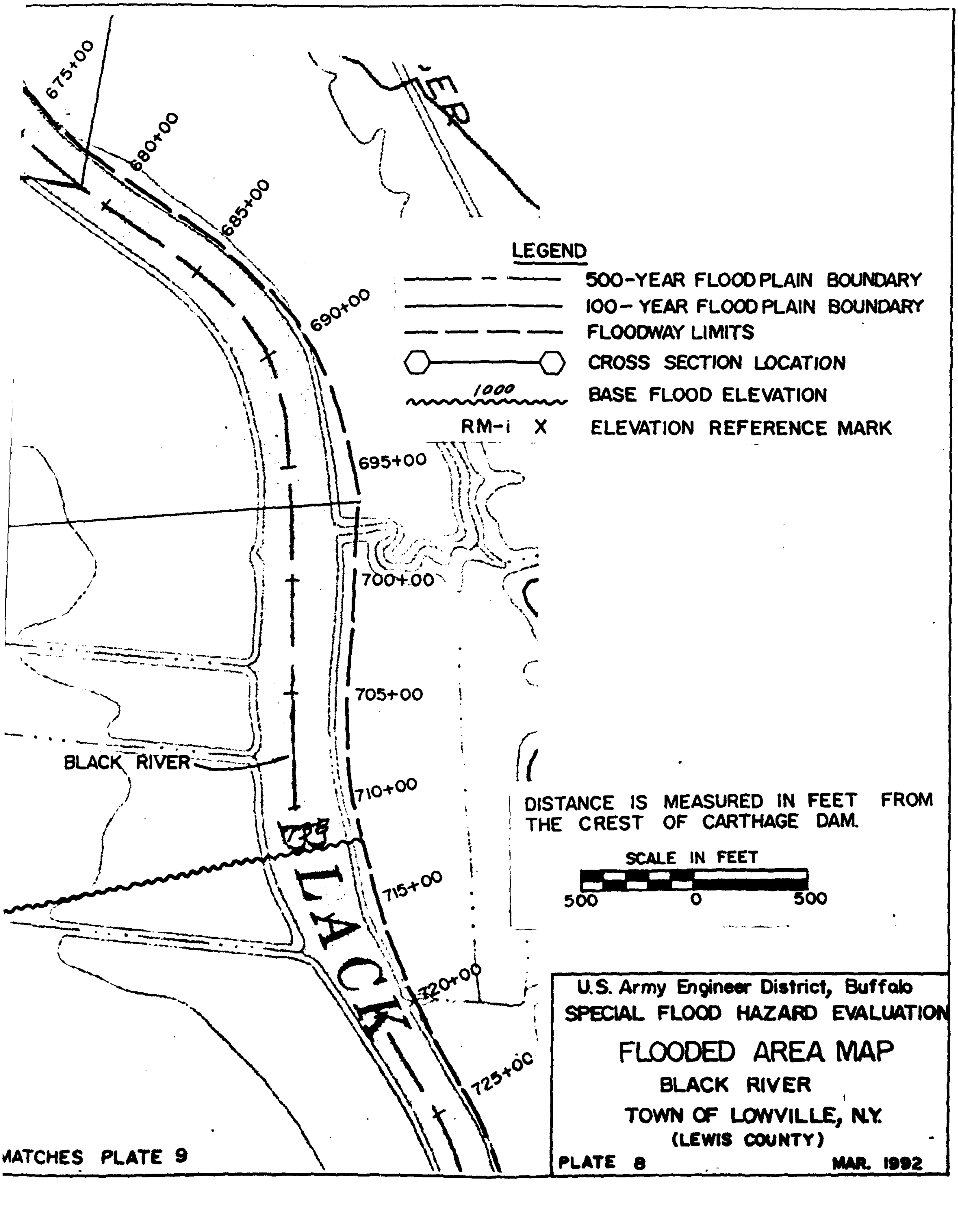
FLOOD PROFILE

MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

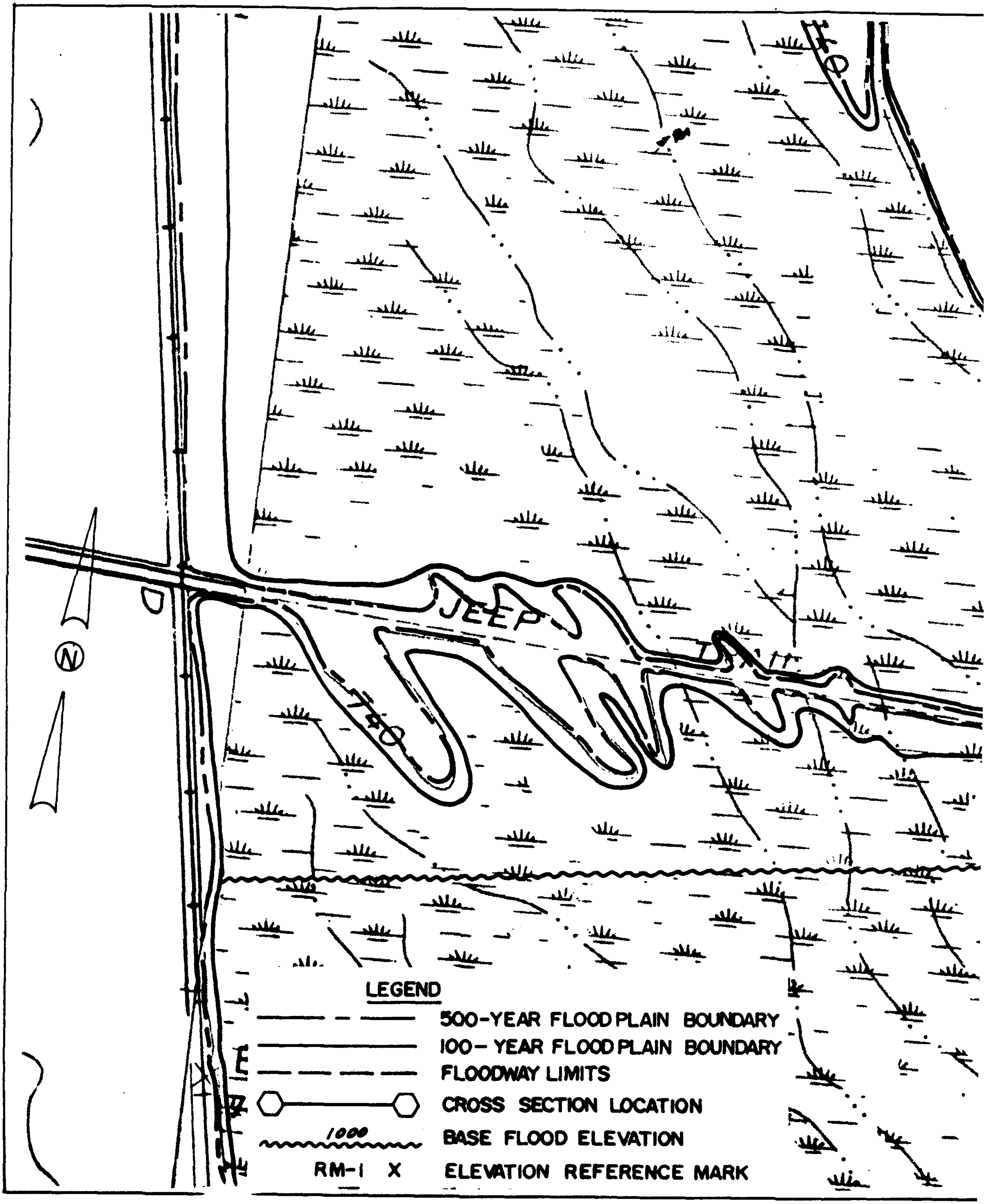
PLATE 7 MAR. 1992


TOWN OF DENMARK
TOWN OF LOWVILLE
RM 1
DOWNSTREAM STUDY L
NEW YORK CENTRAL
740
741
A
N

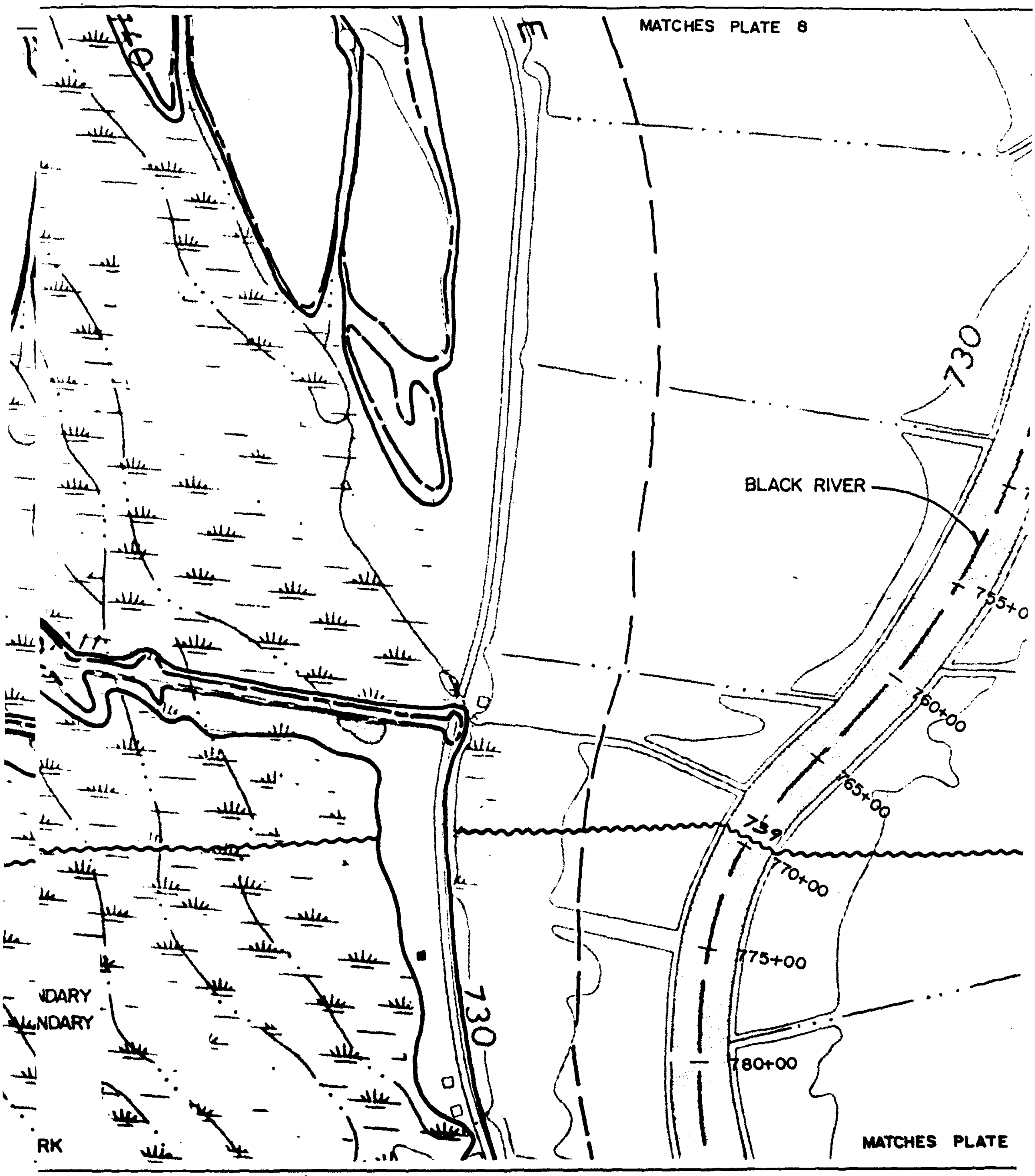

DOWNSTREAM STUDY LIMIT-CORPORATE BOUNDARY
675+00
680+00
685+00
690+00
695+0
700+
705+0
710+0
715
730
730
738
BLACK RIVER
LACK
RIDGE
MATCHES PLATE 9

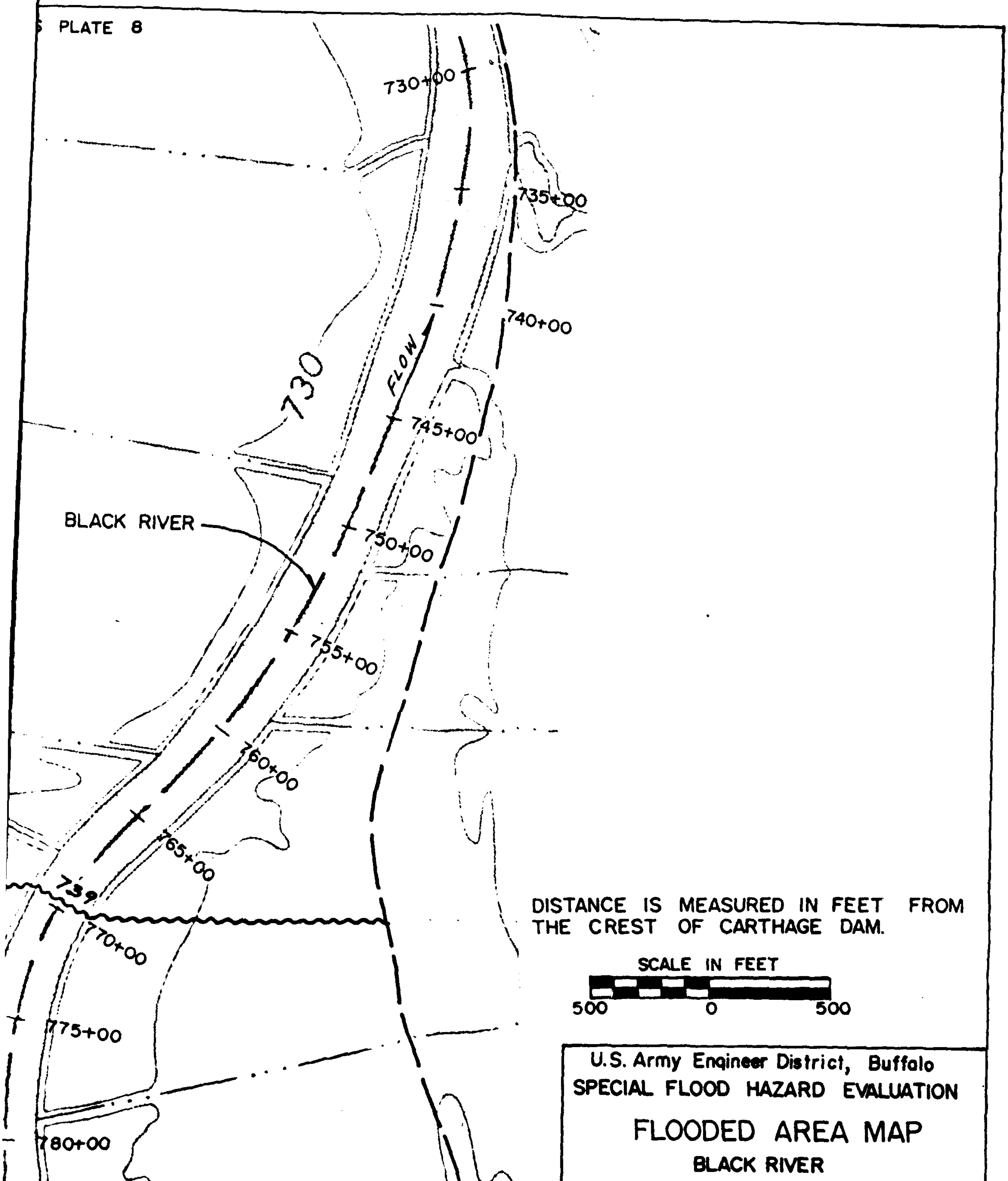


675+00
680+00
685+00
690+00
695+00
700+00
705+00
710+00
715+00
720+00
725+00
BLACK RIVER
LACK
LEGEND
500-YEAR FLOODPLAIN BOUNDARY
100-YEAR FLOODPLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
1000
BASE FLOOD ELEVATION
RM-i X
ELEVATION REFERENCE MARK
DISTANCE IS MEASURED IN FEET FROM THE CREST OF CARTHAGE DAM.
SCALE IN FEET
500
0
500
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION
FLOODED AREA MAP
BLACK RIVER
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)
PLATE 8
MAR. 1992
MATCHES PLATE 9



740
JEEP TRAIL
740
N
LEGEND
500-YEAR FLOOD PLAIN BOUNDARY
100- YEAR FLOOD PLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
1000
BASE FLOOD ELEVATION
RM-1 X
ELEVATION REFERENCE MARK


MATCHES PLATE 8
730
BLACK RIVER
755+0
760+00
765+00
739
770+00
775+00
780+00
730
NDARY
NDARY
RK
MATCHES PLATE



U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

FLOODED AREA MAP

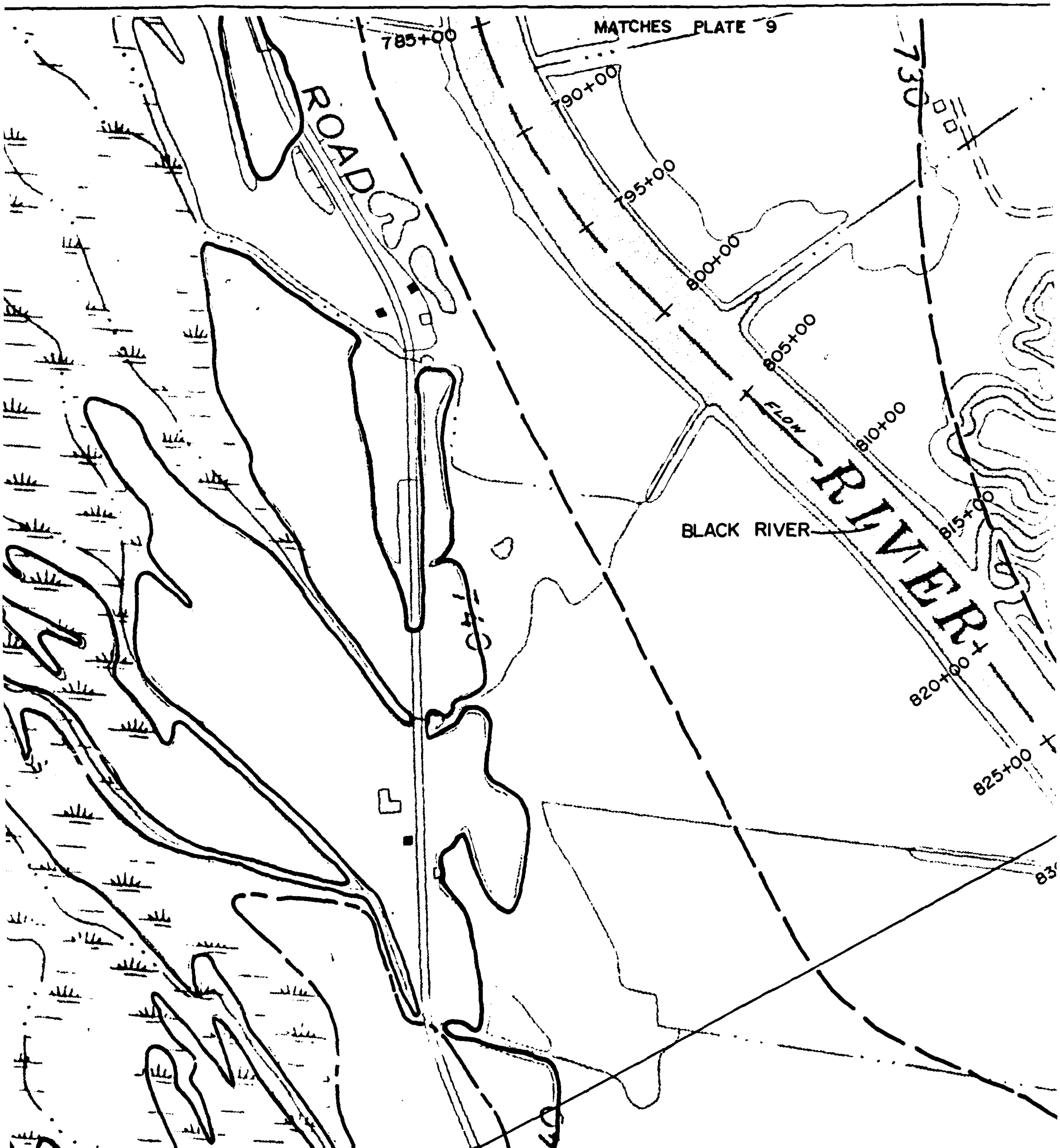
BLACK RIVER

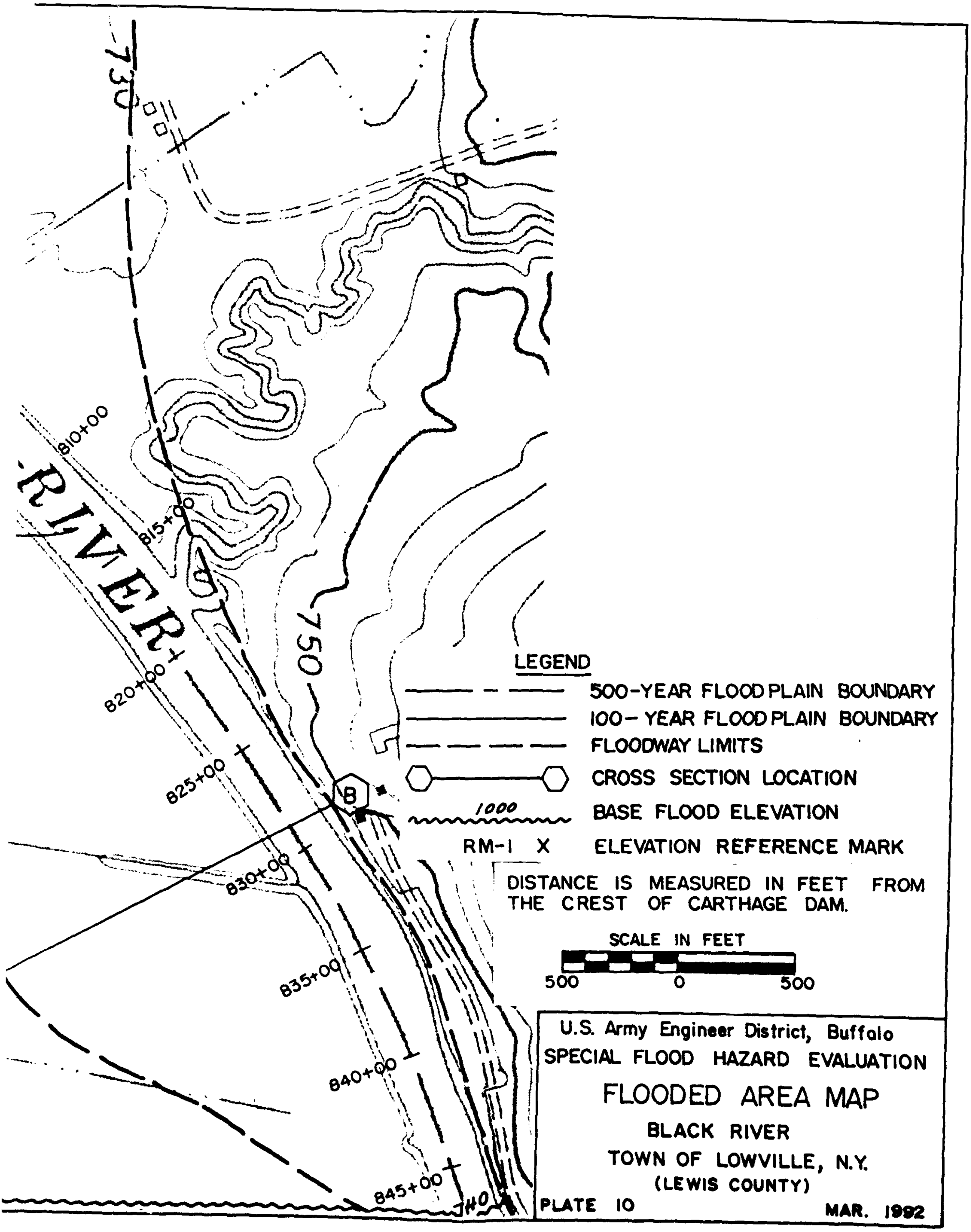
TOWN OF LOWVILLE, N.Y.

(LEWIS COUNTY)

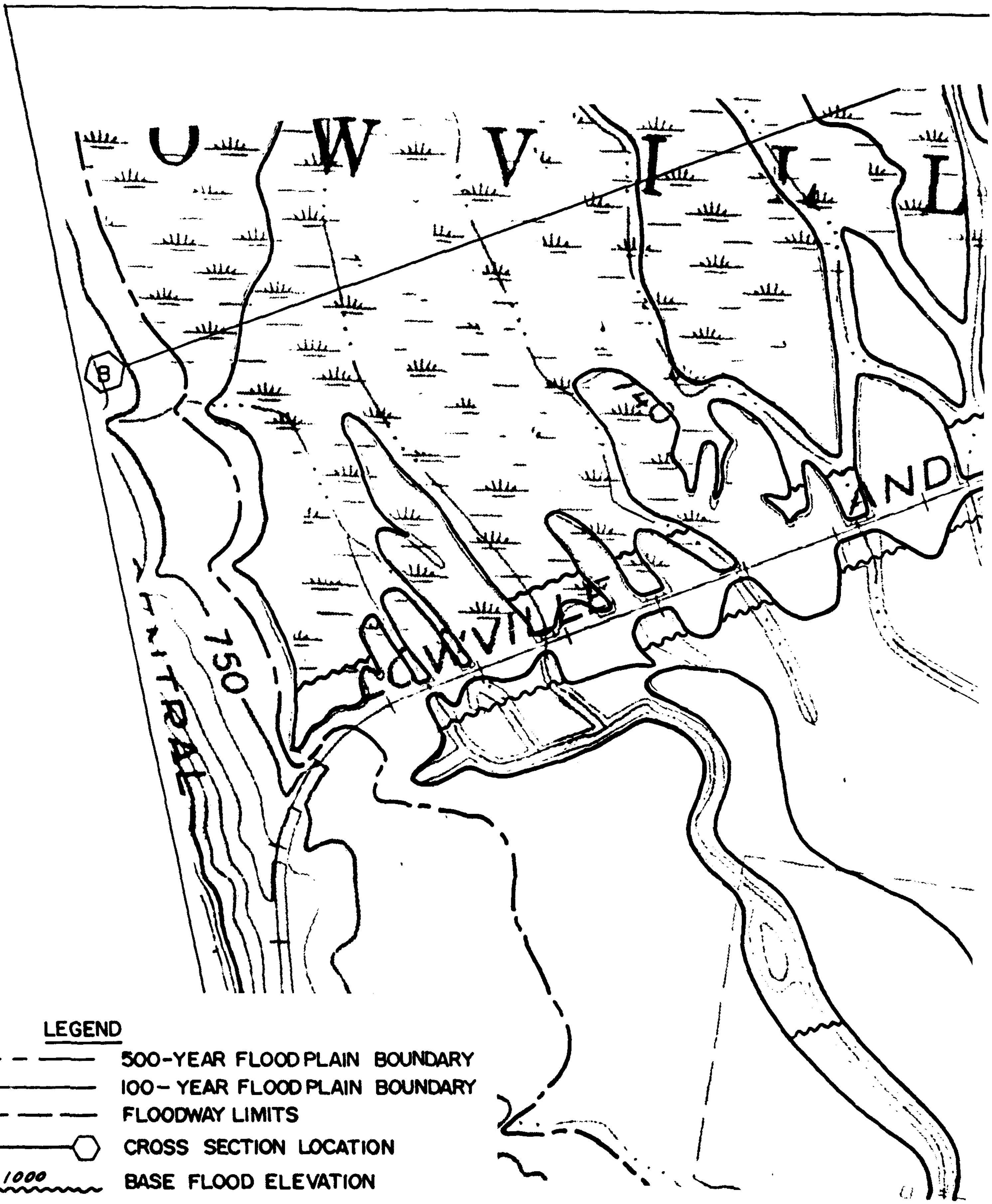
PLATE 9 MAR. 1992


800
850
E


MATCHES PLATE 9
785+00
790+00
795+00
800+00
805+00
810+00
815+00
820+00
825+00
ROAD
FLOW
RIVER
BLACK RIVER
730
740
740
MATCHES PLATE 11



730
750
RIVER
810+00
815+00
820+00
825+00
830+00
835+00
840+00
845+00
B
LEGEND
500-YEAR FLOOD PLAIN BOUNDARY
100-YEAR FLOOD PLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
1000
BASE FLOOD ELEVATION
RM-1 X
ELEVATION REFERENCE MARK
DISTANCE IS MEASURED IN FEET FROM THE CREST OF CARTHAGE DAM.
SCALE IN FEET
500
0
500
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION
FLOODED AREA MAP
BLACK RIVER
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)
PLATE 10
MAR. 1992



LEGEND

500-YEAR FLOODPLAIN BOUNDARY

100-YEAR FLOODPLAIN BOUNDARY

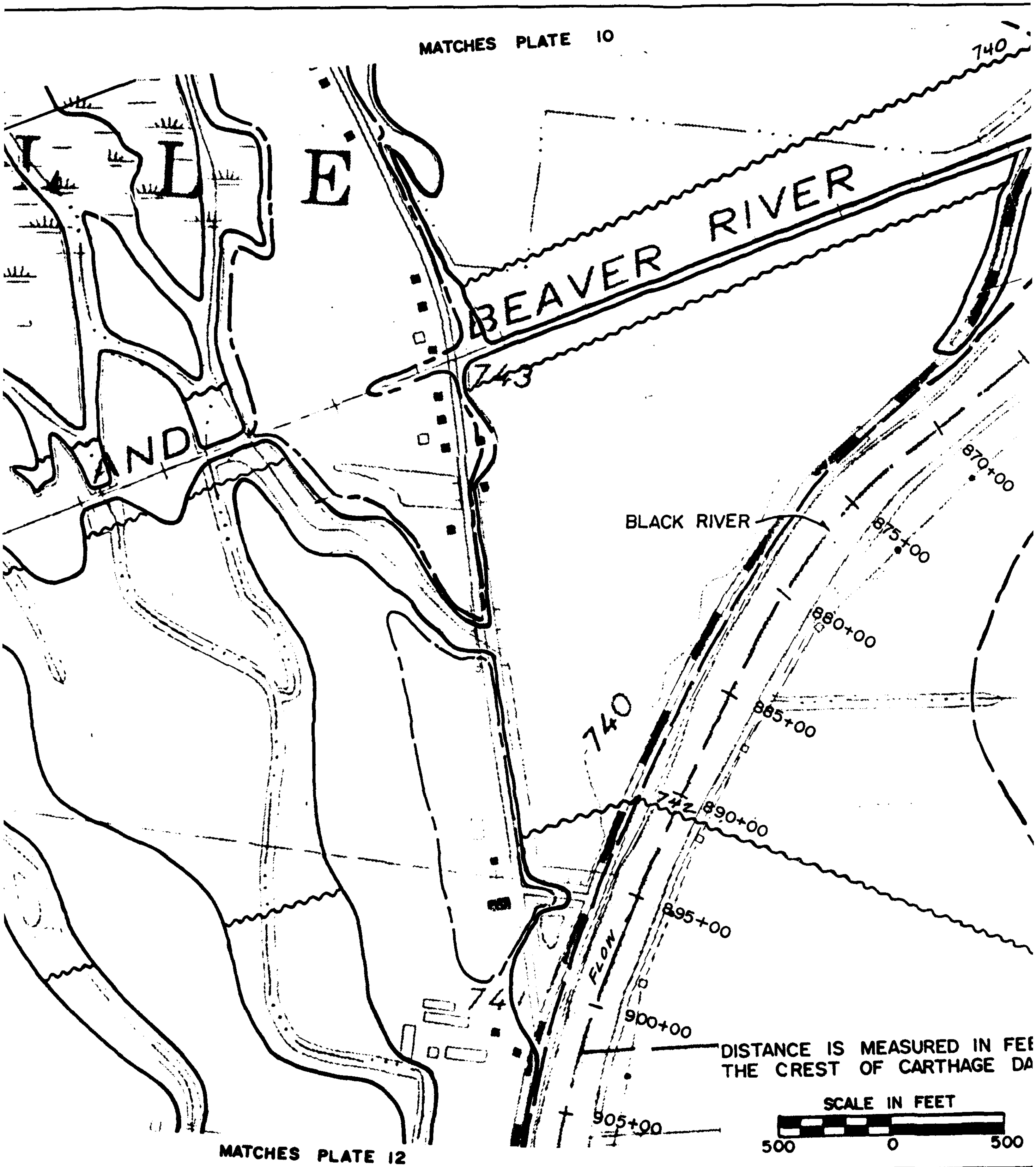
FLOODWAY LIMITS

CROSS SECTION LOCATION

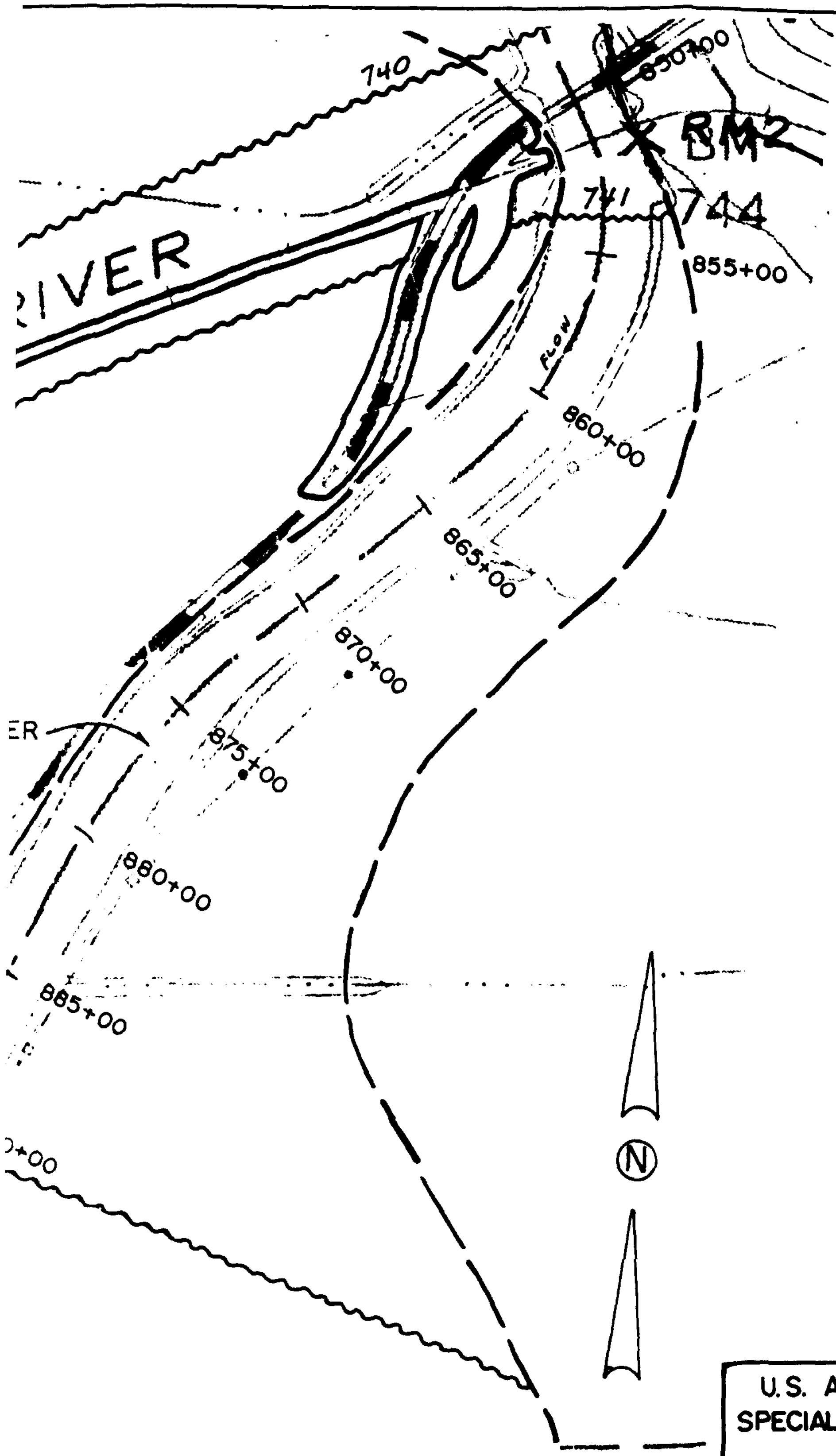
1000 BASE FLOOD ELEVATION

RM-1 X ELEVATION REFERENCE MARK

MATCHES PLATE 10



MATCHES PLATE 12



ISTANCE IS MEASURED IN FEET FROM
HE CREST OF CARTHAGE DAM.

SCALE IN FEET

500 0 500

U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

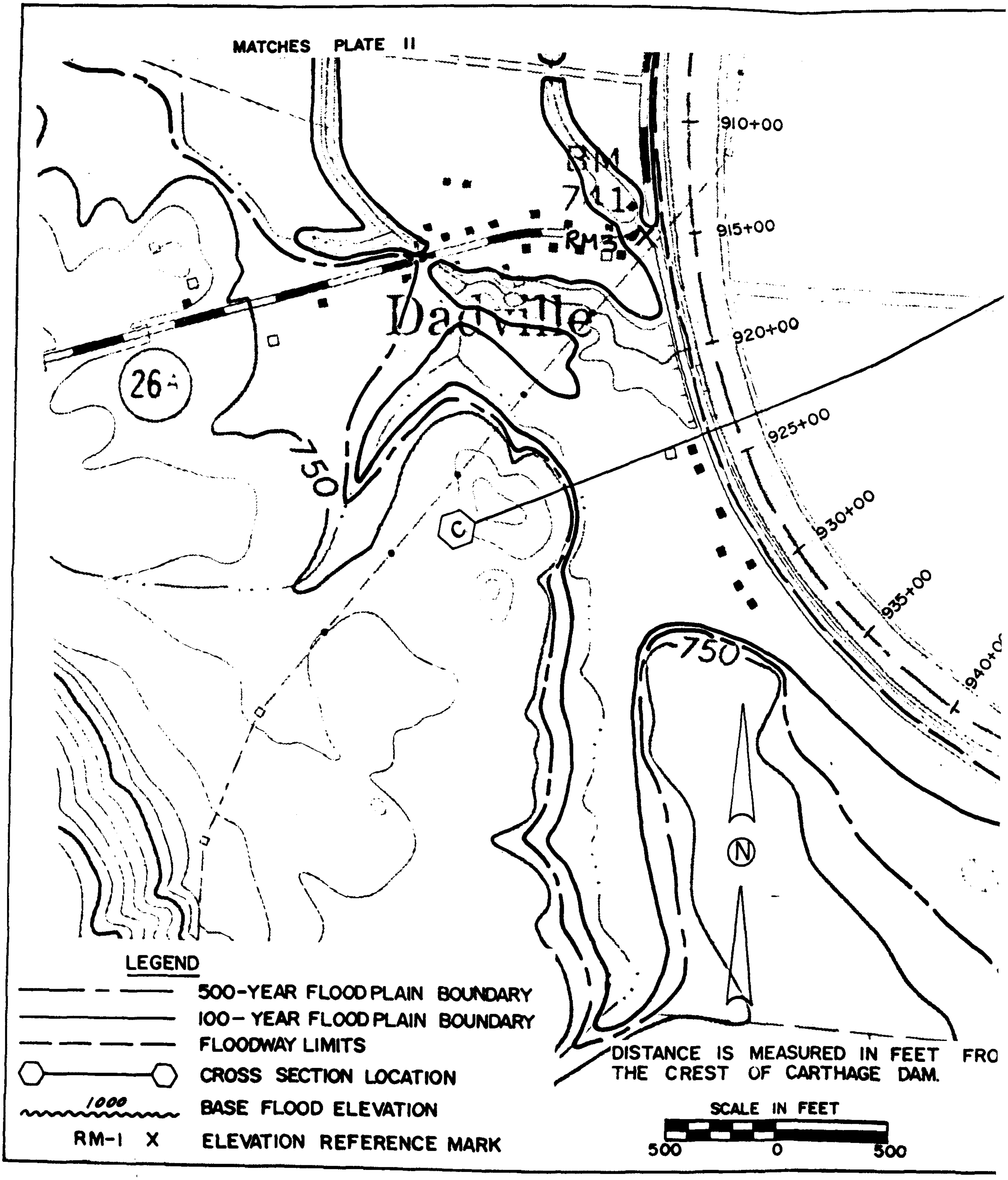
FLOODED AREA MAP

BLACK RIVER

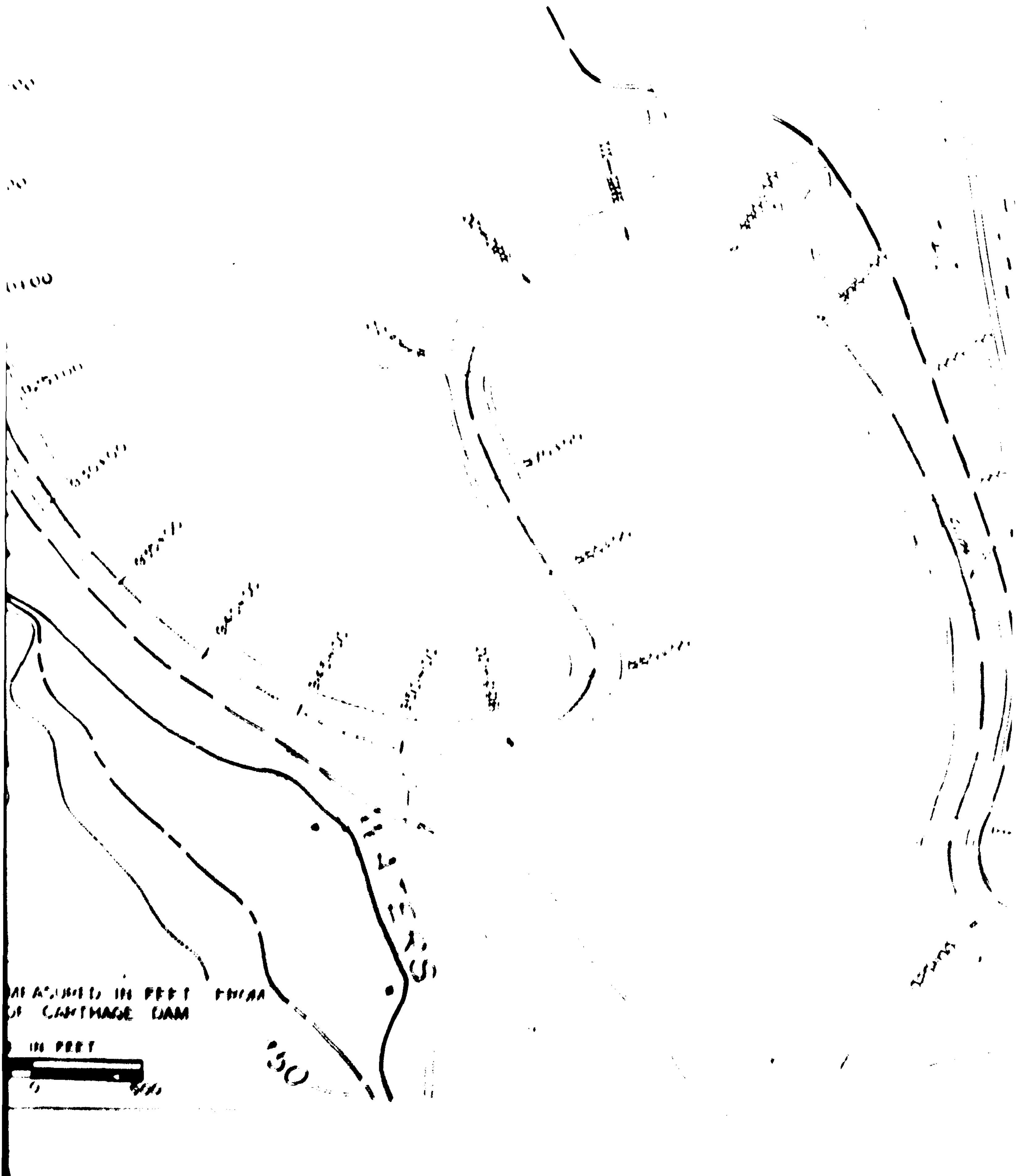
TOWN OF LOWVILLE, N.Y.

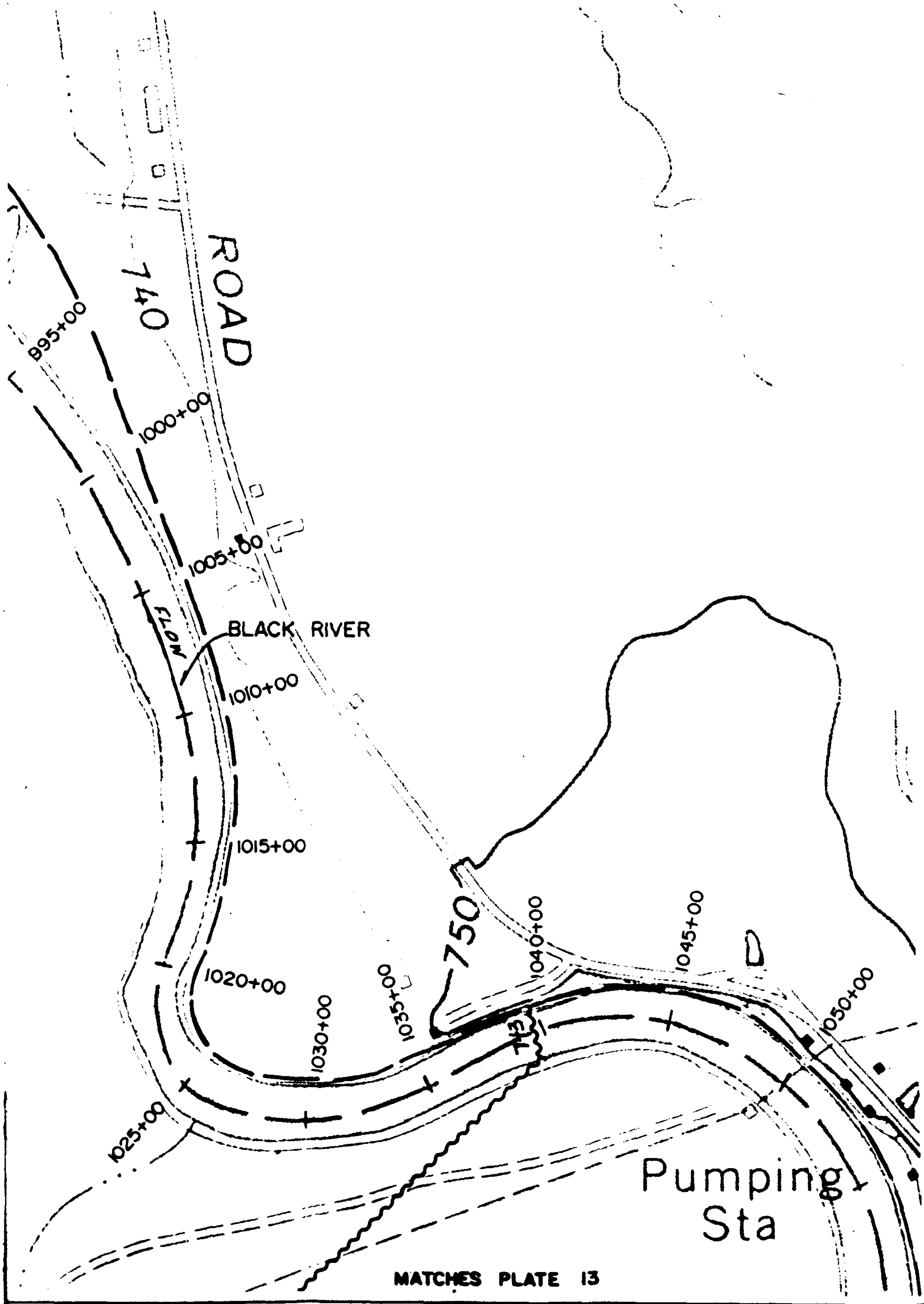
(LEWIS COUNTY)

PLATE 11 MAR. 1992



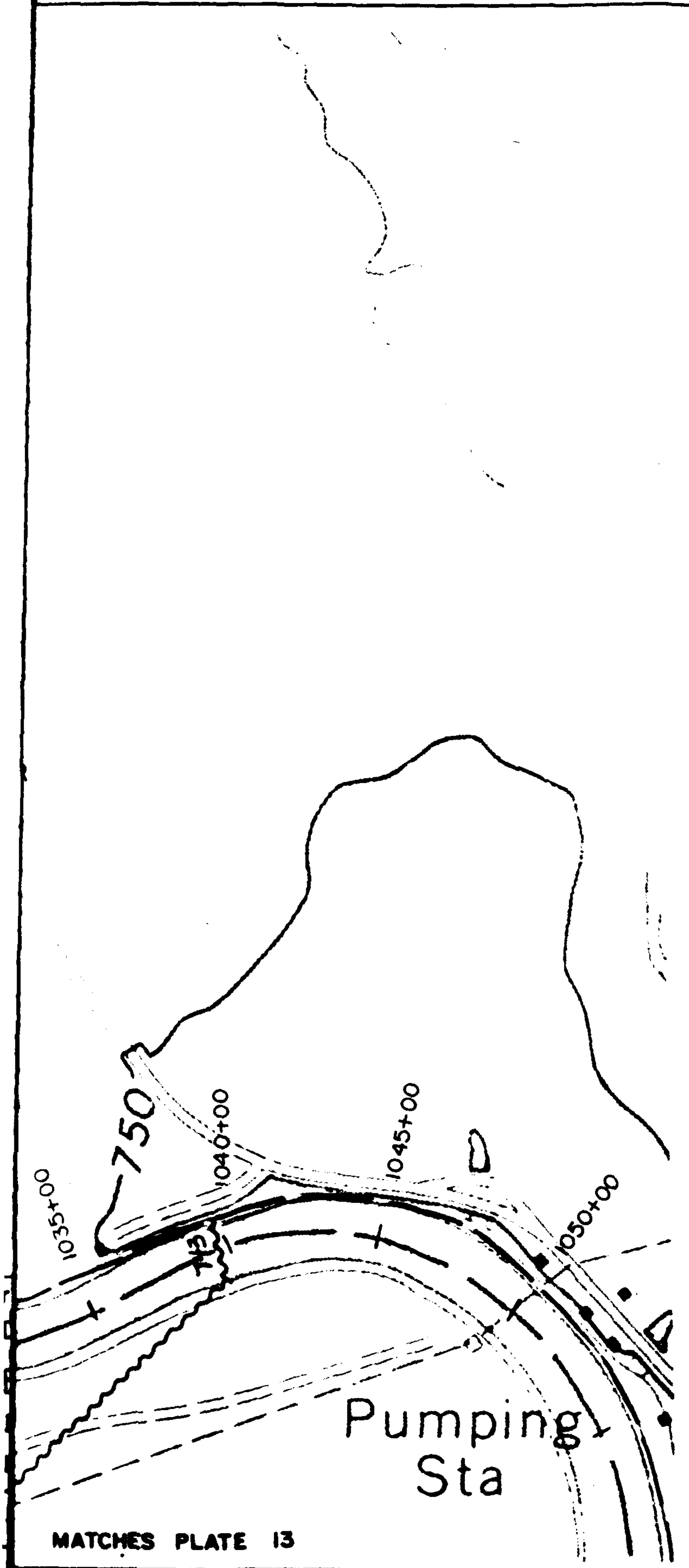
MATCHES PLATE 11
910+00
915+00
920+00
925+00
930+00
935+00
940+0
RM 7
RM3 X
Dadville
26
750
750
C
N
LEGEND
500-YEAR FLOOD PLAIN BOUNDARY
100-YEAR FLOOD PLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
1000
BASE FLOOD ELEVATION
RM-1 X
ELEVATION REFERENCE MARK
DISTANCE IS MEASURED IN FEET FRO
THE CREST OF CARTHAGE DAM.
SCALE IN FEET
500
0
500


CARTHAGE DAM
IN FEET



MATCHES PLATE 13

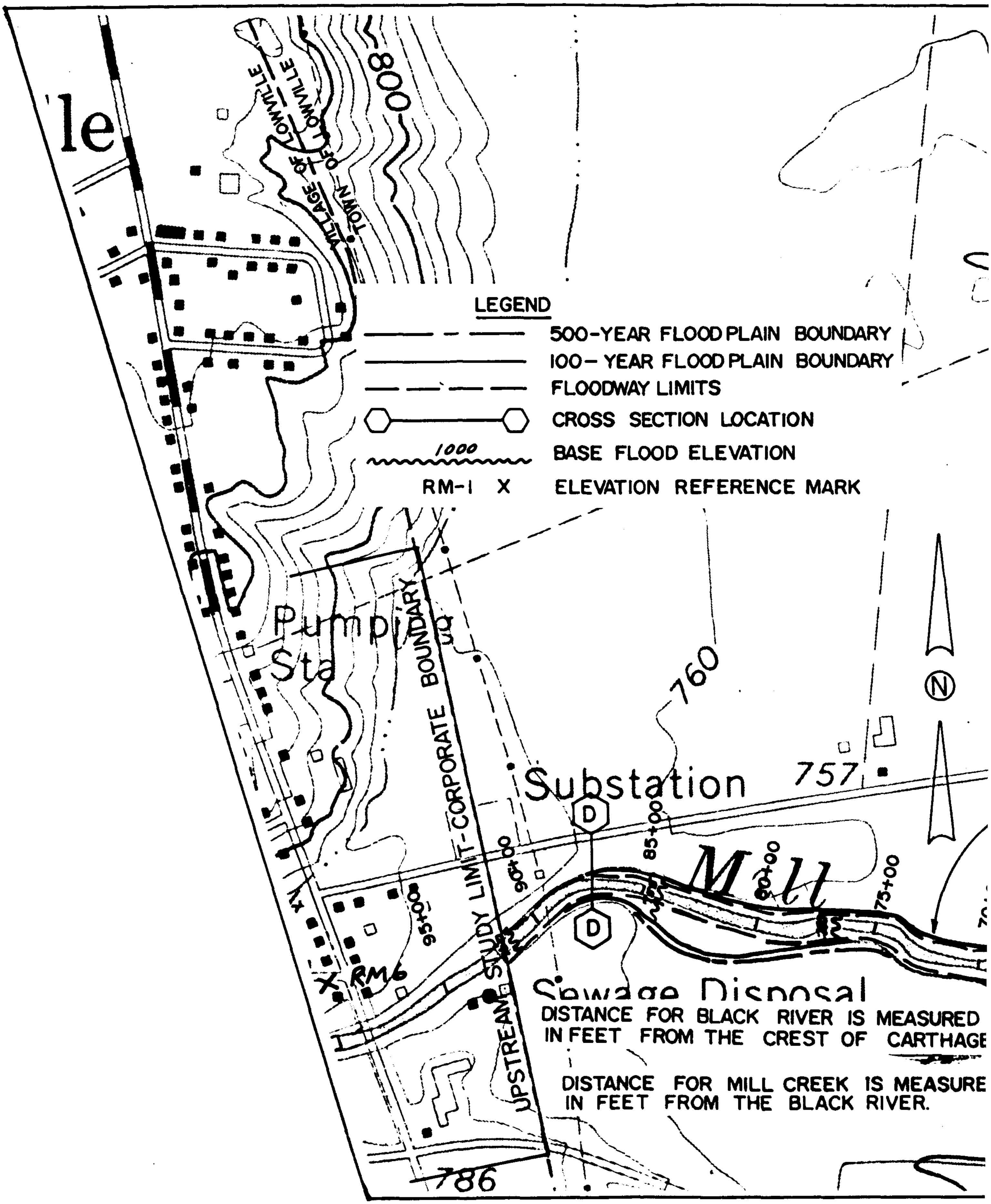
U.S. Army Engineer D
SPECIAL FLOOD HAZ
FLOODED
BLACK R
TOWN OF LO
(LEWIS C
PLATE 12



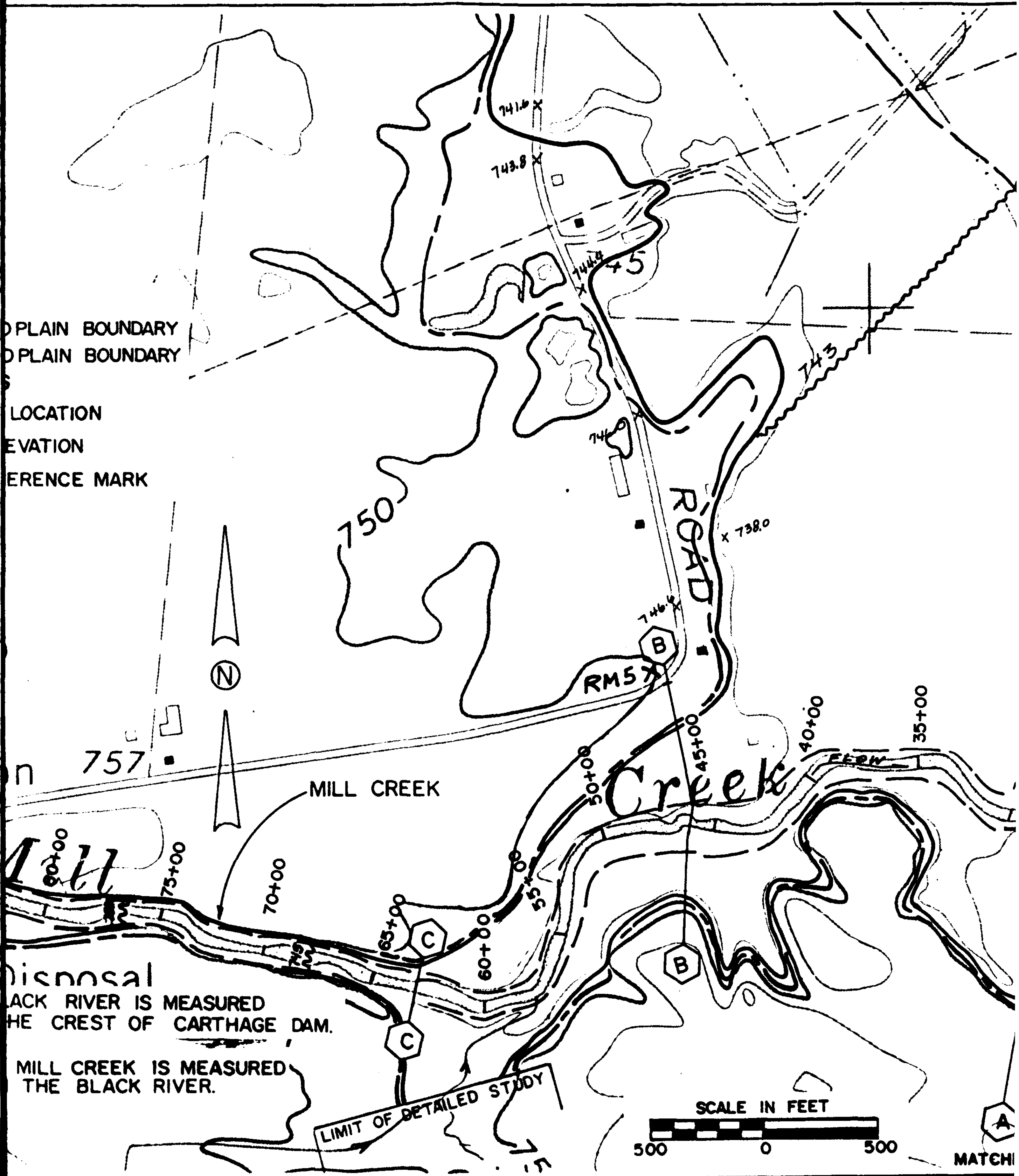
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

FLOODED AREA MAP
BLACK RIVER
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

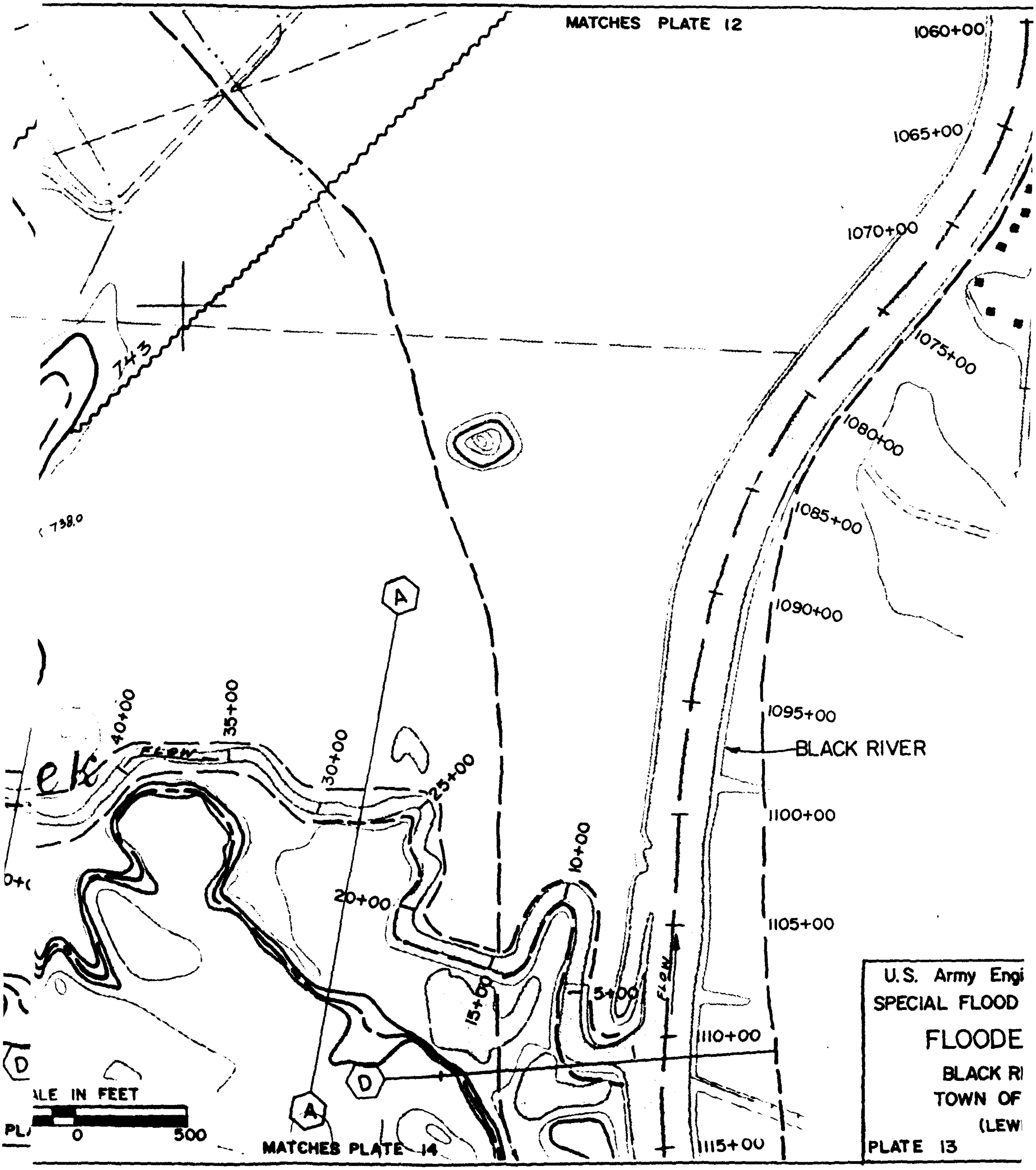
PLATE 12 MAR. 1992

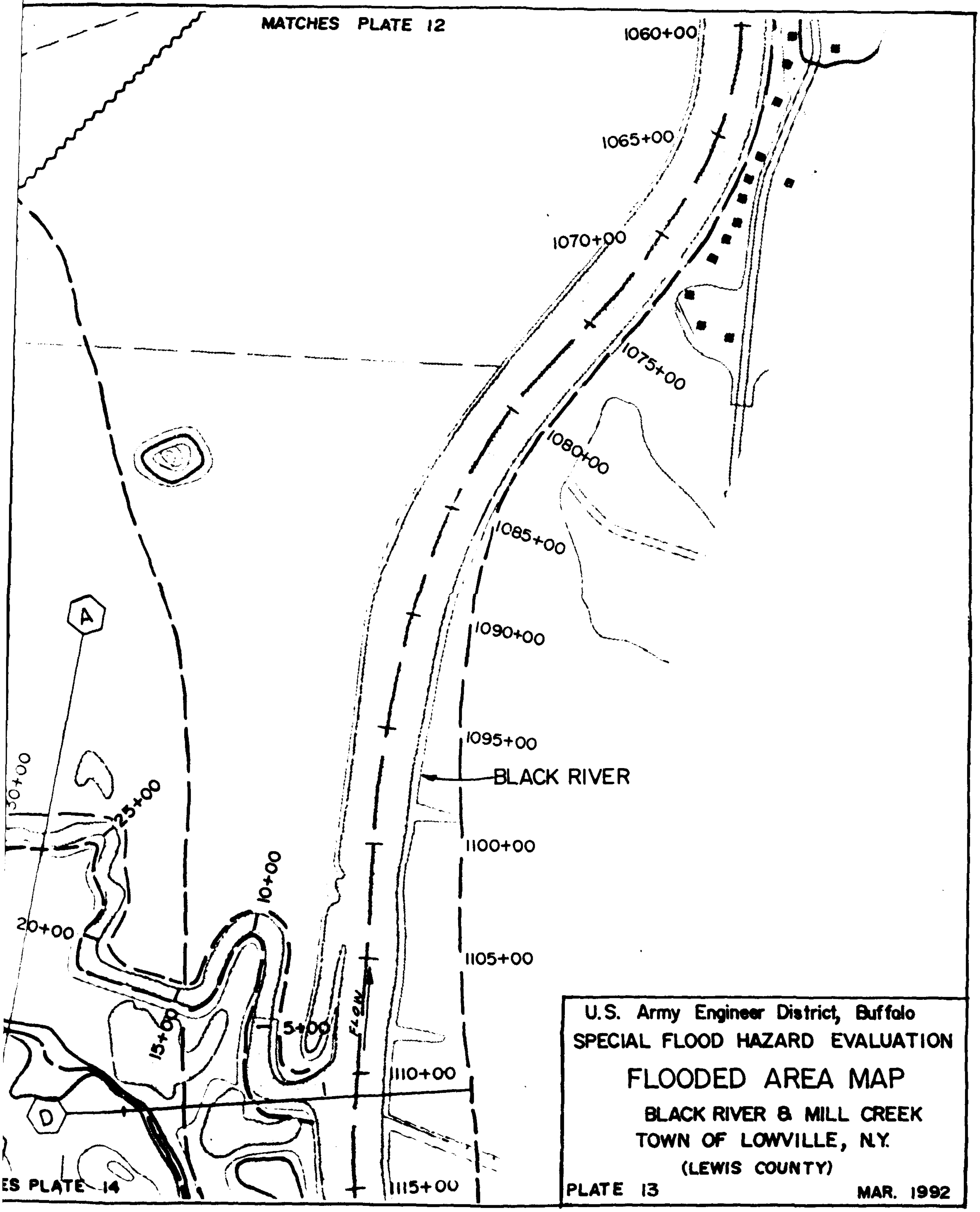


le
VILLAGE OF LOWVILLE
TOWN OF LOWVILLE
800
LEGEND
500-YEAR FLOODPLAIN BOUNDARY
100-YEAR FLOODPLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
1000
BASE FLOOD ELEVATION
RM-1 X
ELEVATION REFERENCE MARK
Pumping
Sta
UPSTREAM STUDY LIMIT-CORPORATE BOUNDARY
760
Substation
757
D
85+00
90+00
95+00
80+00
75+00
Mill
X RM6
Sewage Disposal
DISTANCE FOR BLACK RIVER IS MEASURED
IN FEET FROM THE CREST OF CARTHAGE
DISTANCE FOR MILL CREEK IS MEASURE
IN FEET FROM THE BLACK RIVER.
N
786



PLAIN BOUNDARY
PLAIN BOUNDARY
LOCATION
EVATION
ERENCE MARK
741.6
743.8
744.4
745
743
750
746
738.0
746.4
ROAD
RM5
B
N
757
MILL CREEK
Creek
FLOW
90+00
75+00
70+00
65+00
60+00
55+00
50+00
45+00
40+00
35+00
C
Disposal
ACK RIVER IS MEASURED
HE CREST OF CARTHAGE DAM.
MILL CREEK IS MEASURED
THE BLACK RIVER.
LIMIT OF DETAILED STUDY
SCALE IN FEET
500
0
500
A
MATCH


MATCHES PLATE 12
1060+00
1065+00
1070+00
1075+00
1080+00
1085+00
1090+00
1095+00
BLACK RIVER
1100+00
1105+00
110+00
115+00
743
738.0
40+00
35+00
30+00
25+00
20+00
15+00
10+00
5+00
FLOW
A
D
ALE IN FEET
0
500
MATCHES PLATE 14
U.S. Army Engi
SPECIAL FLOOD
FLOODE
BLACK RI
TOWN OF
(LEWI
PLATE 13

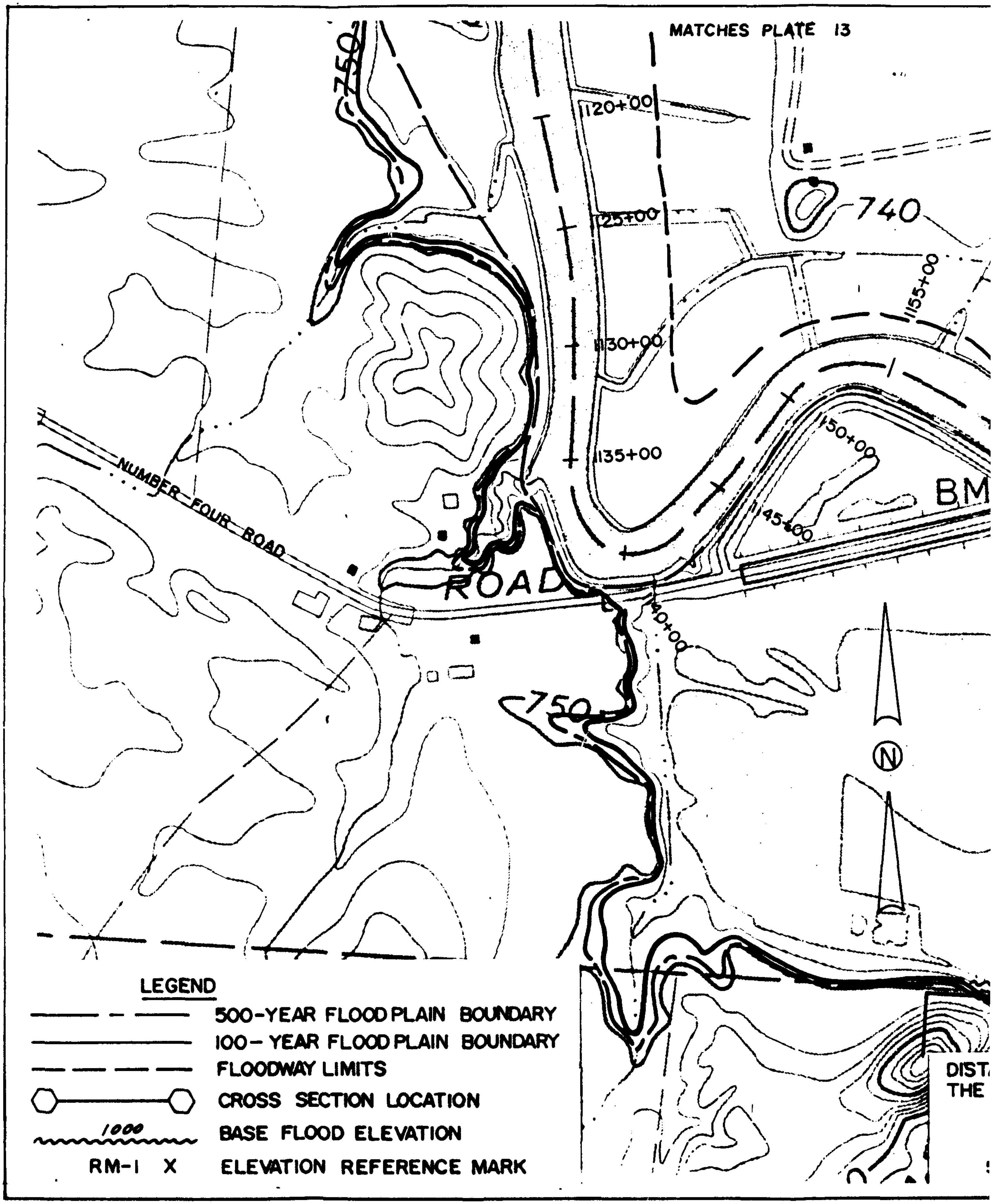


U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

FLOODED AREA MAP

BLACK RIVER & MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

PLATE 13 MAR. 1992



LEGEND

500-YEAR FLOOD PLAIN BOUNDARY

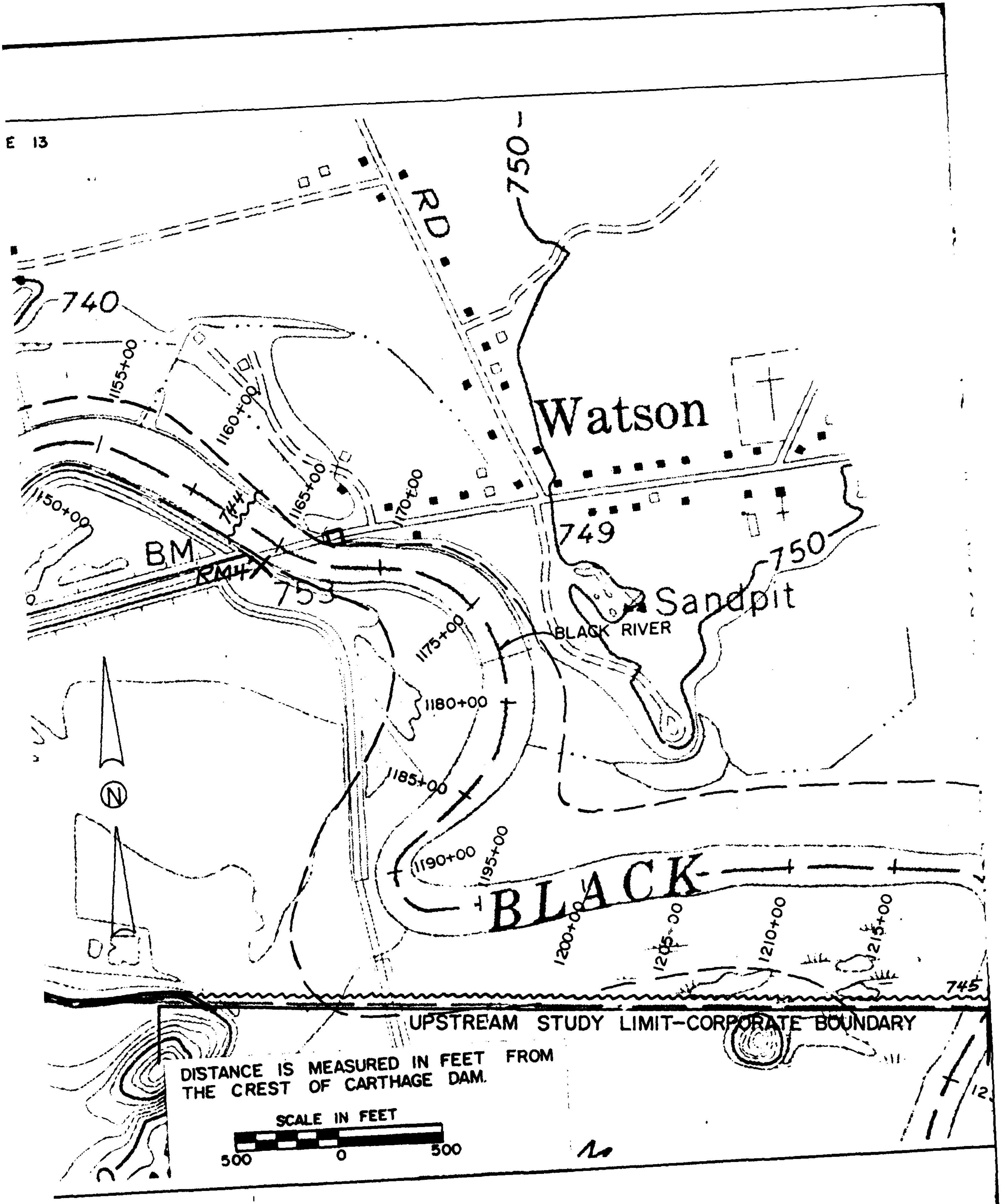
100-YEAR FLOOD PLAIN BOUNDARY

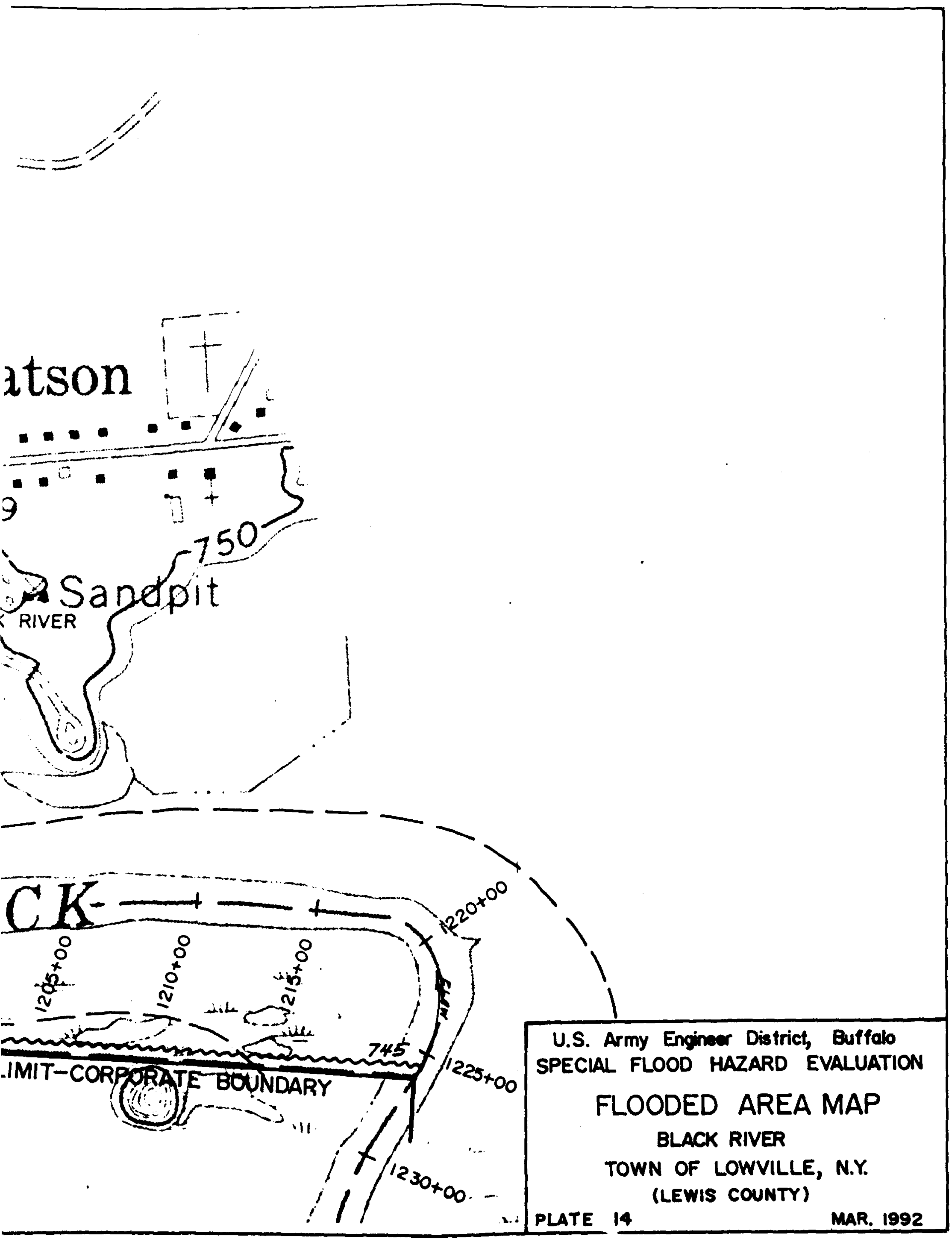
FLOODWAY LIMITS

CROSS SECTION LOCATION

1000 BASE FLOOD ELEVATION

RM-1 X ELEVATION REFERENCE MARK


E 13
RD
750
740
Watson
1155+00
1160+00
1165+00
1170+00
1150+00
744
BM
RM4
753
749
750
Sandpit
BLACK RIVER
1175+00
1180+00
1185+00
1190+00
1195+00
BLACK
1200+00
1205+00
1210+00
1215+00
745
UPSTREAM STUDY LIMIT-CORPORATE BOUNDARY
DISTANCE IS MEASURED IN FEET FROM
THE CREST OF CARTHAGE DAM.
SCALE IN FEET
500
0
500



U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

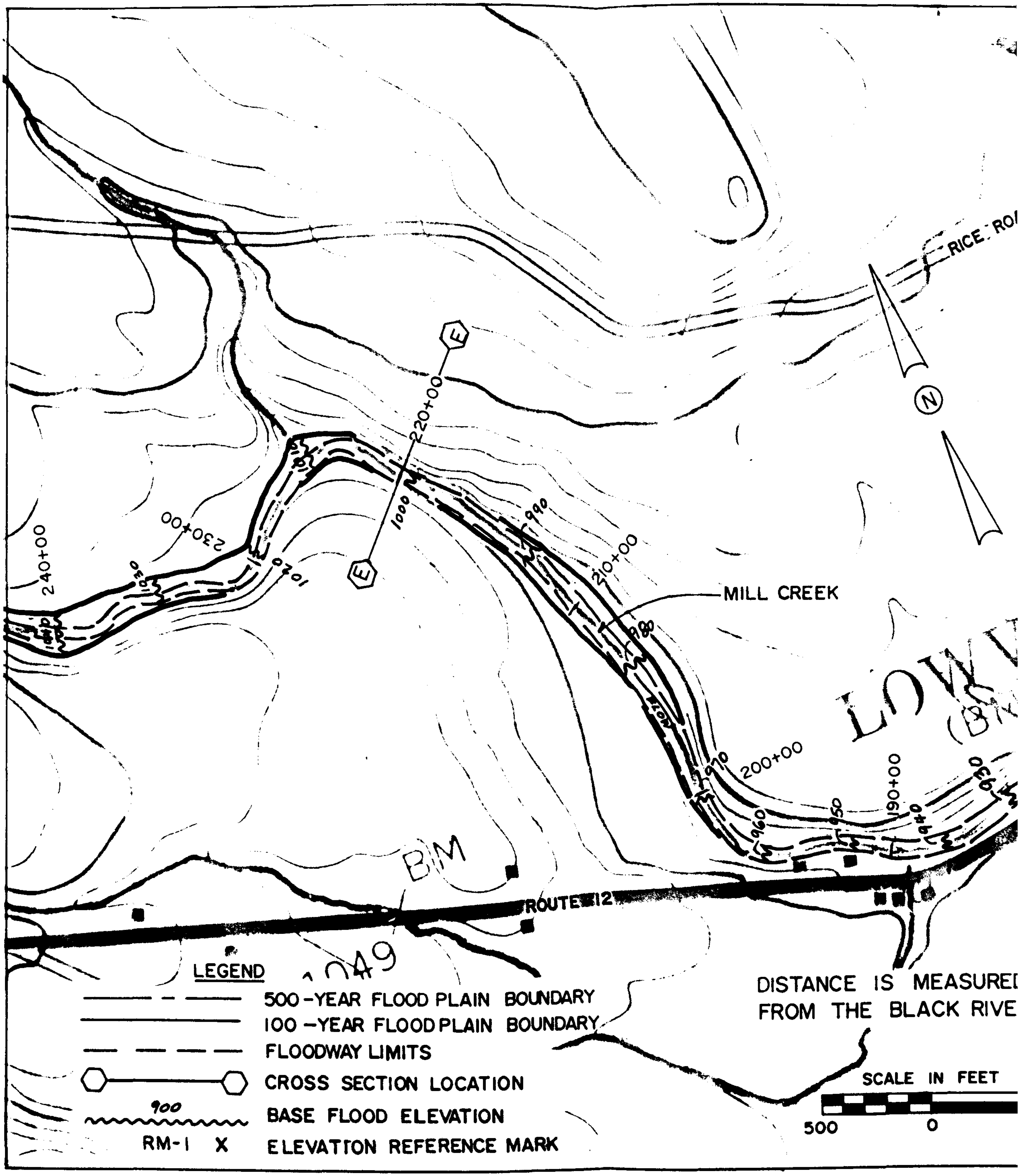
FLOODED AREA MAP

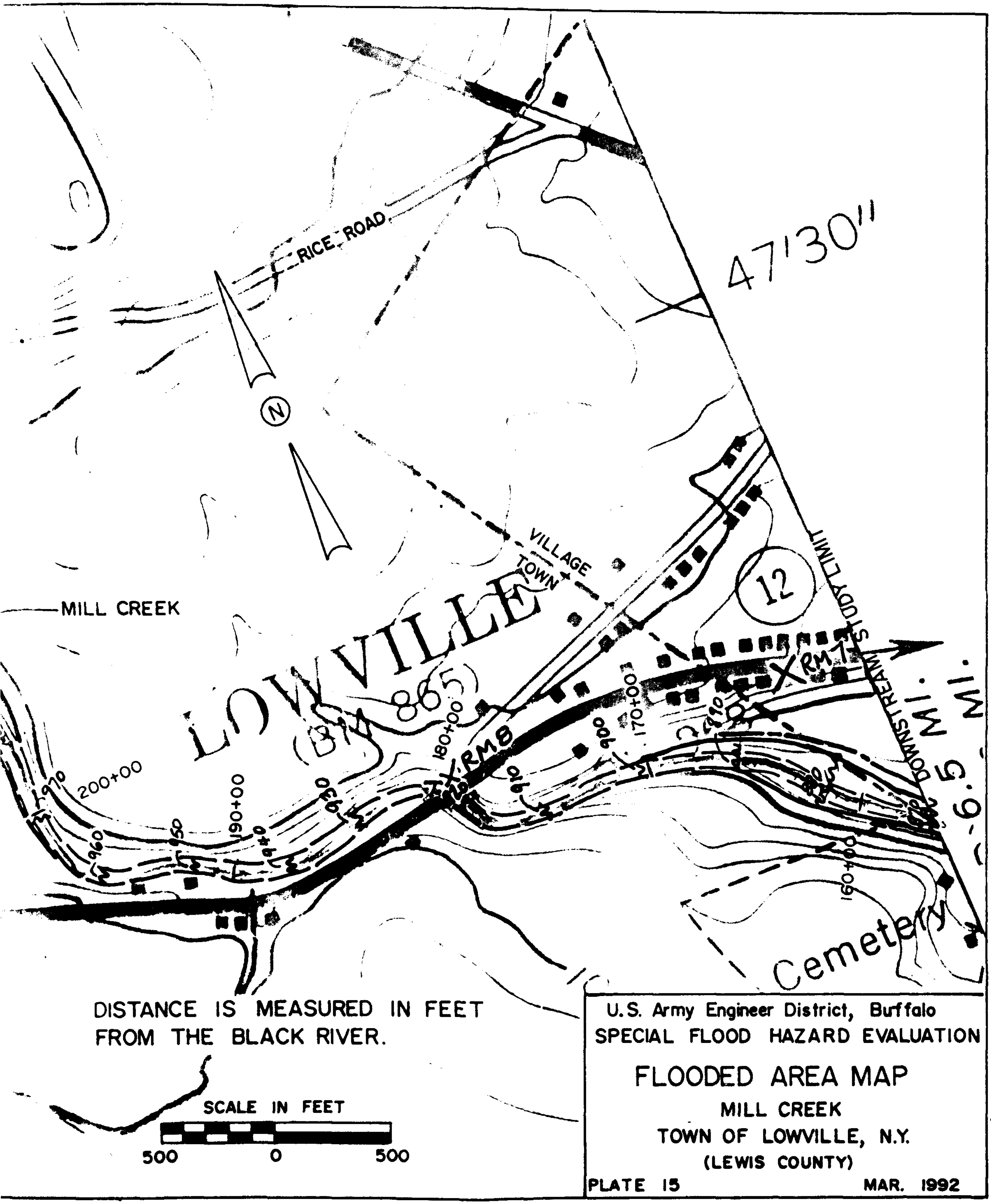
BLACK RIVER

TOWN OF LOWVILLE, N.Y.

(LEWIS COUNTY)

PLATE 14 MAR. 1992


RICE ROA
220+00
1000
990
230+00
240+00
1030
1020
1040
210+00
MILL CREEK
980
970
200+00
190+00
960
950
940
930
BM
ROUTE 12
1049
LEGEND
500-YEAR FLOOD PLAIN BOUNDARY
100-YEAR FLOOD PLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
900
BASE FLOOD ELEVATION
RM-1 X
ELEVATION REFERENCE MARK
DISTANCE IS MEASURED
FROM THE BLACK RIVE
SCALE IN FEET
500
0



DISTANCE IS MEASURED IN FEET FROM THE BLACK RIVER.

U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

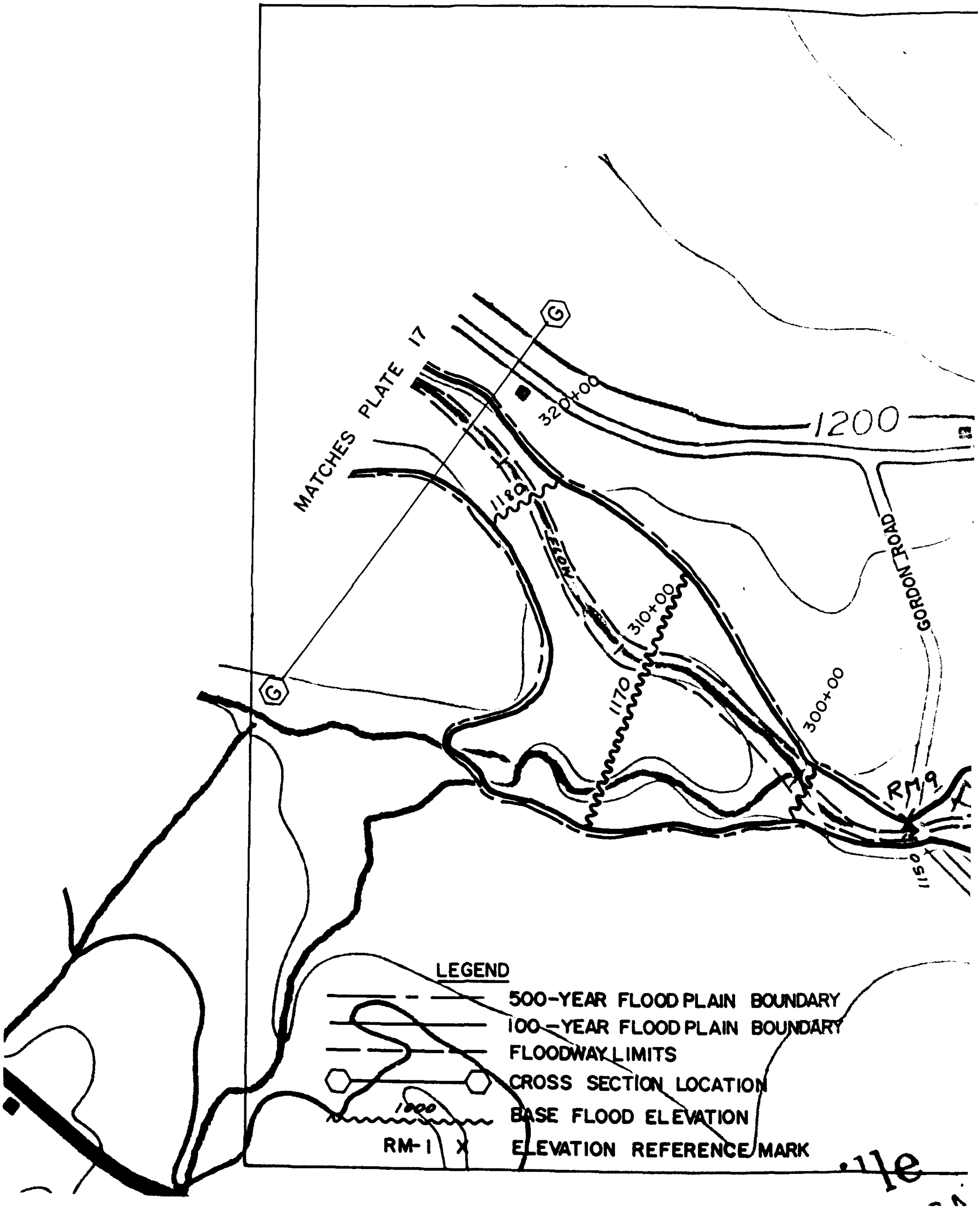
FLOODED AREA MAP

MILL CREEK

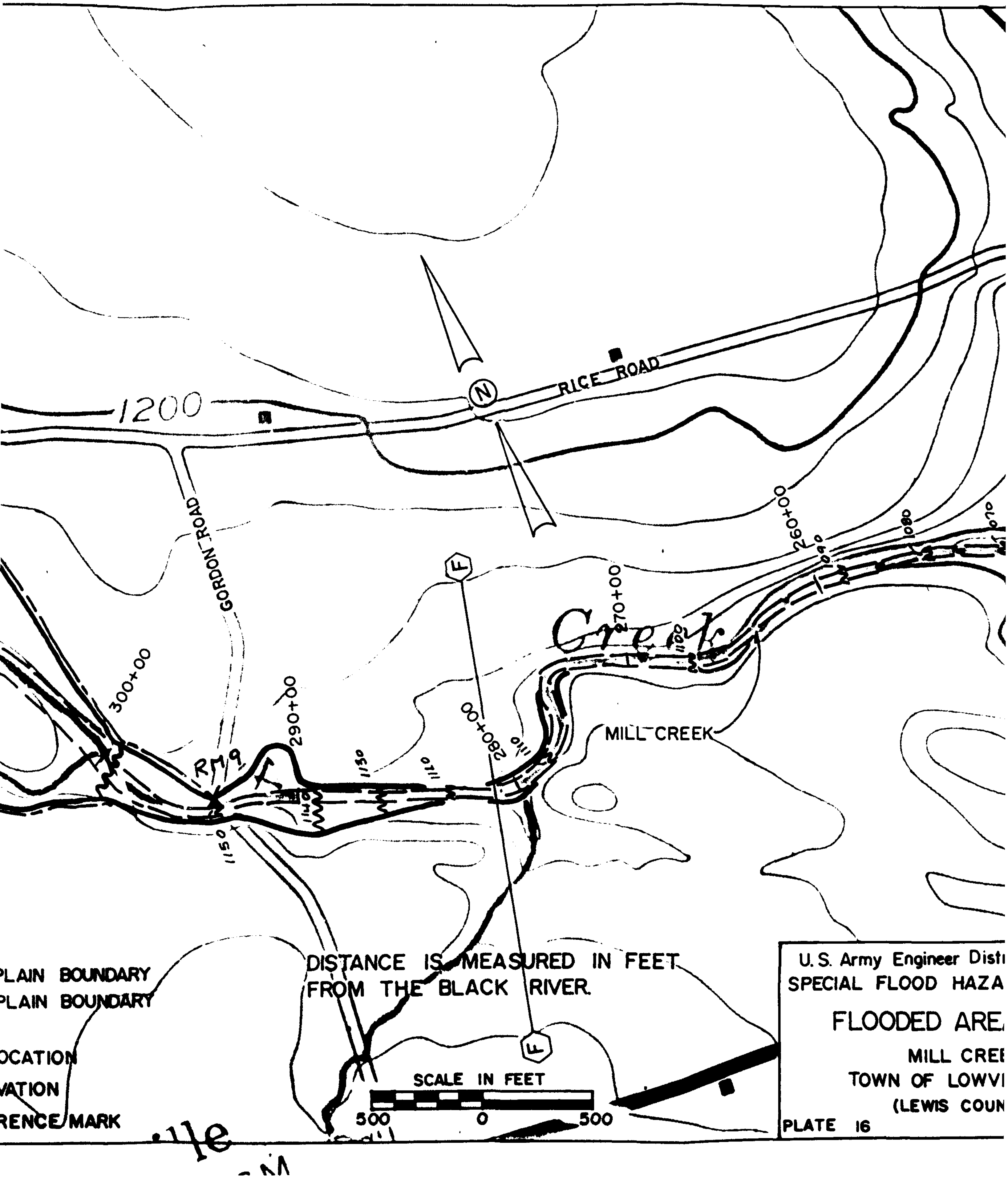
TOWN OF LOWVILLE, N.Y.

(LEWIS COUNTY)

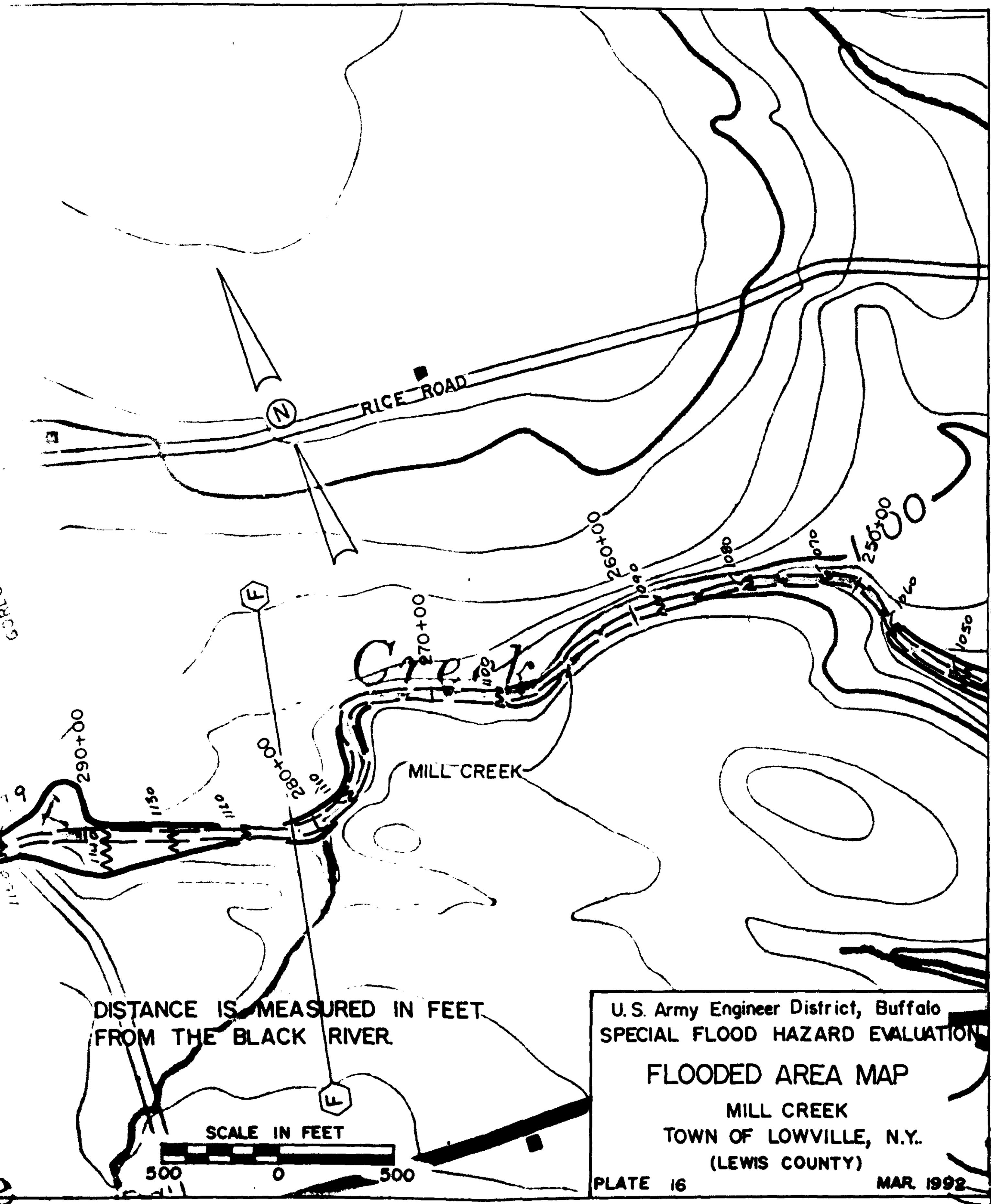
PLATE 15 MAR. 1992



MATCHES PLATE 17
1200
320+00
1180
310+00
1170
300+00
GORDON ROAD
RM9
1150
LEGEND
500-YEAR FLOOD PLAIN BOUNDARY
100-YEAR FLOOD PLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
BASE FLOOD ELEVATION
RM-1 X ELEVATION REFERENCE MARK
1000



1200
RICE ROAD
N
GORDON ROAD
F
260+00
270+00
280+00
290+00
300+00
RM9
1040
1080
1070
1100
1110
1130
1140
1150
Creek
MILL CREEK
DISTANCE IS MEASURED IN FEET
FROM THE BLACK RIVER.
PLAIN BOUNDARY
PLAIN BOUNDARY
OCATION
VATION
RENCE MARK
SCALE IN FEET
500 0 500
U.S. Army Engineer Dist
SPECIAL FLOOD HAZA
FLOODED ARE
MILL CREE
TOWN OF LOWVI
(LEWIS COUN
PLATE 16

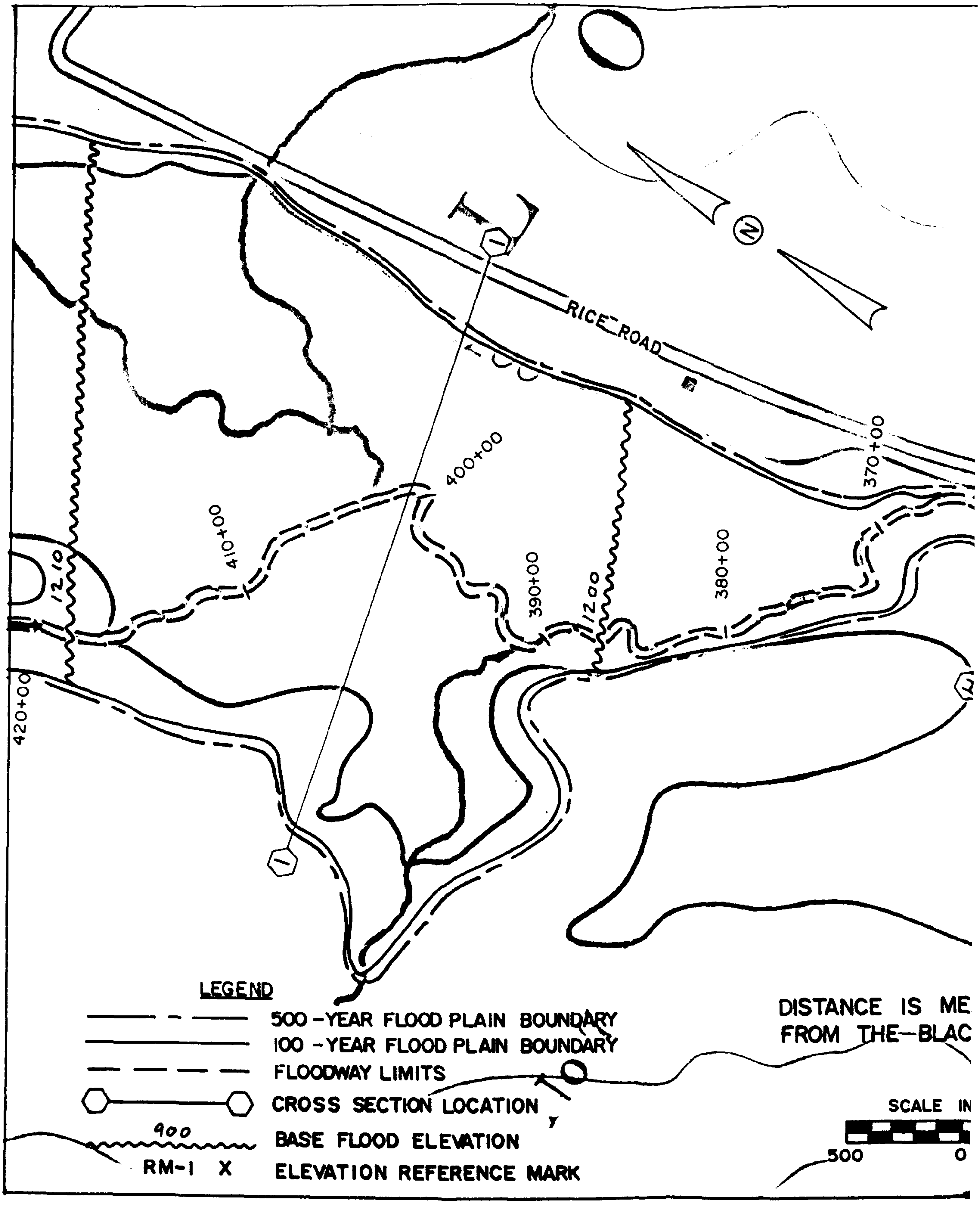


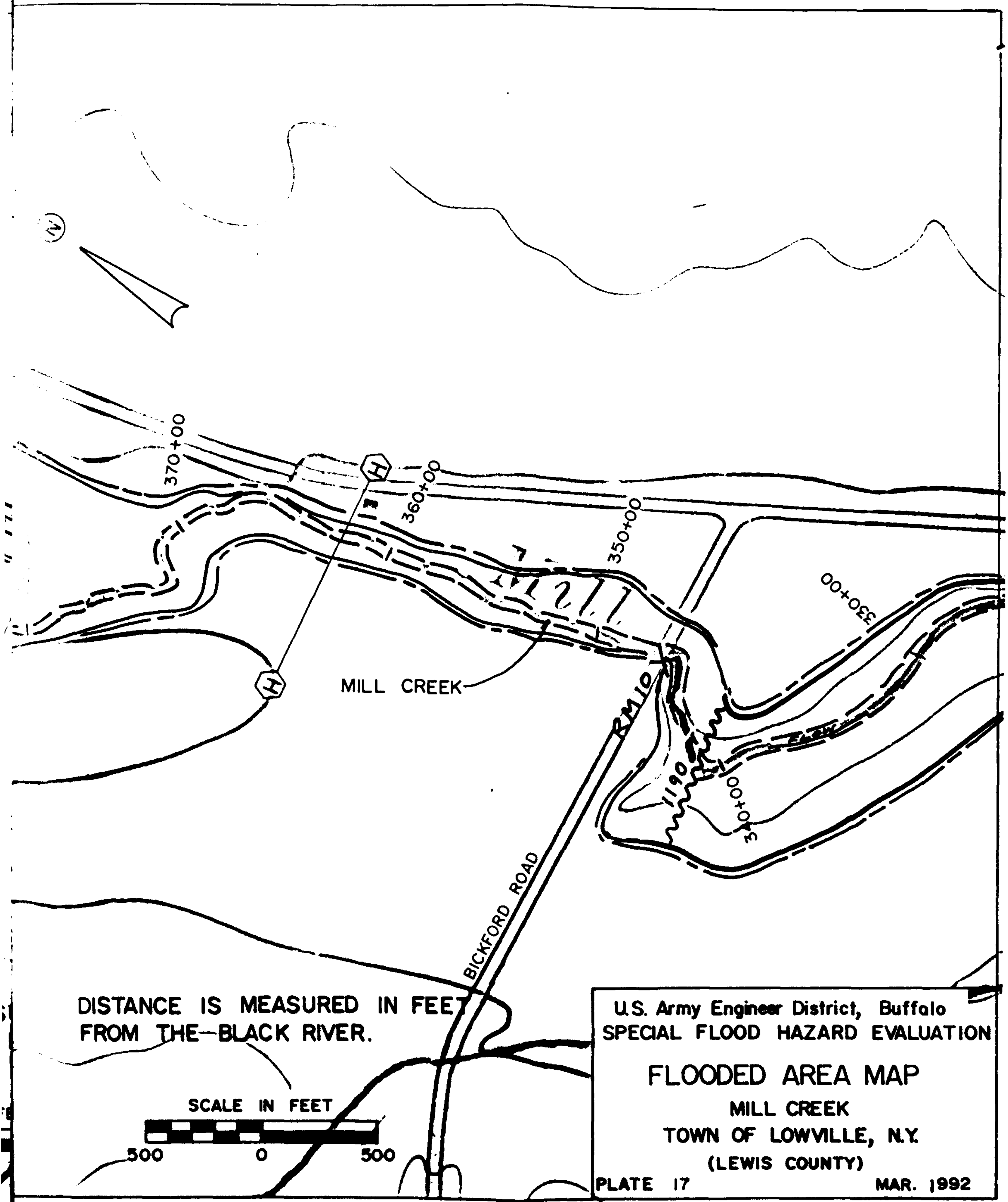
U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

FLOODED AREA MAP

MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

PLATE 16 MAR. 1992


MATCHES PLATE 18
RICE ROAD
N
420+00
410+00
400+00
390+00
380+00
370+00
1210
1200
LEGEND
500 -YEAR FLOOD PLAIN BOUNDARY
100 -YEAR FLOOD PLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
900
BASE FLOOD ELEVATION
RM-1 X
ELEVATION REFERENCE MARK
DISTANCE IS ME
FROM THE BLAC
SCALE IN
500
0



U.S. Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

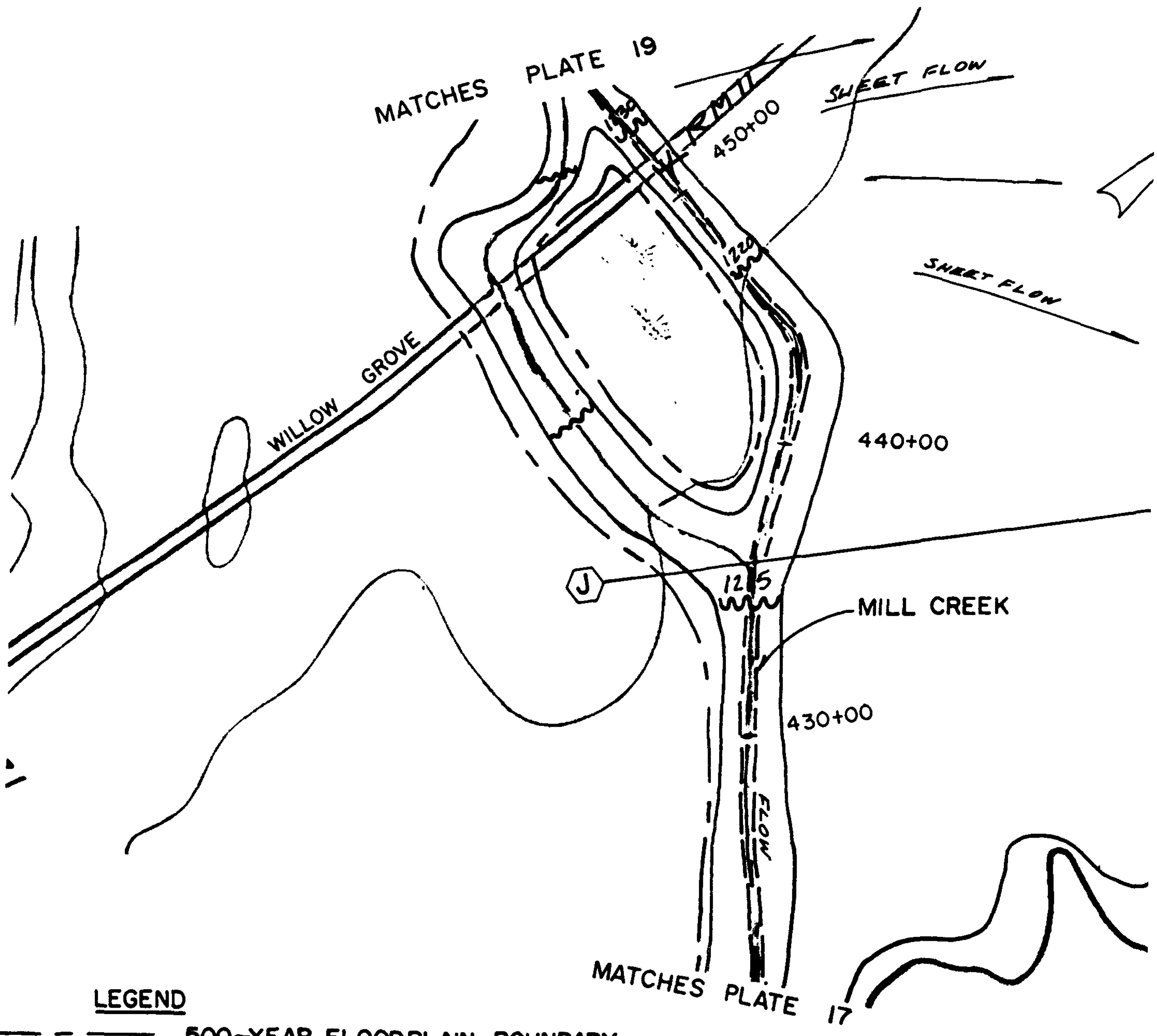
FLOODED AREA MAP

MILL CREEK

TOWN OF LOWVILLE, N.Y.

(LEWIS COUNTY)

PLATE 17 MAR. 1992



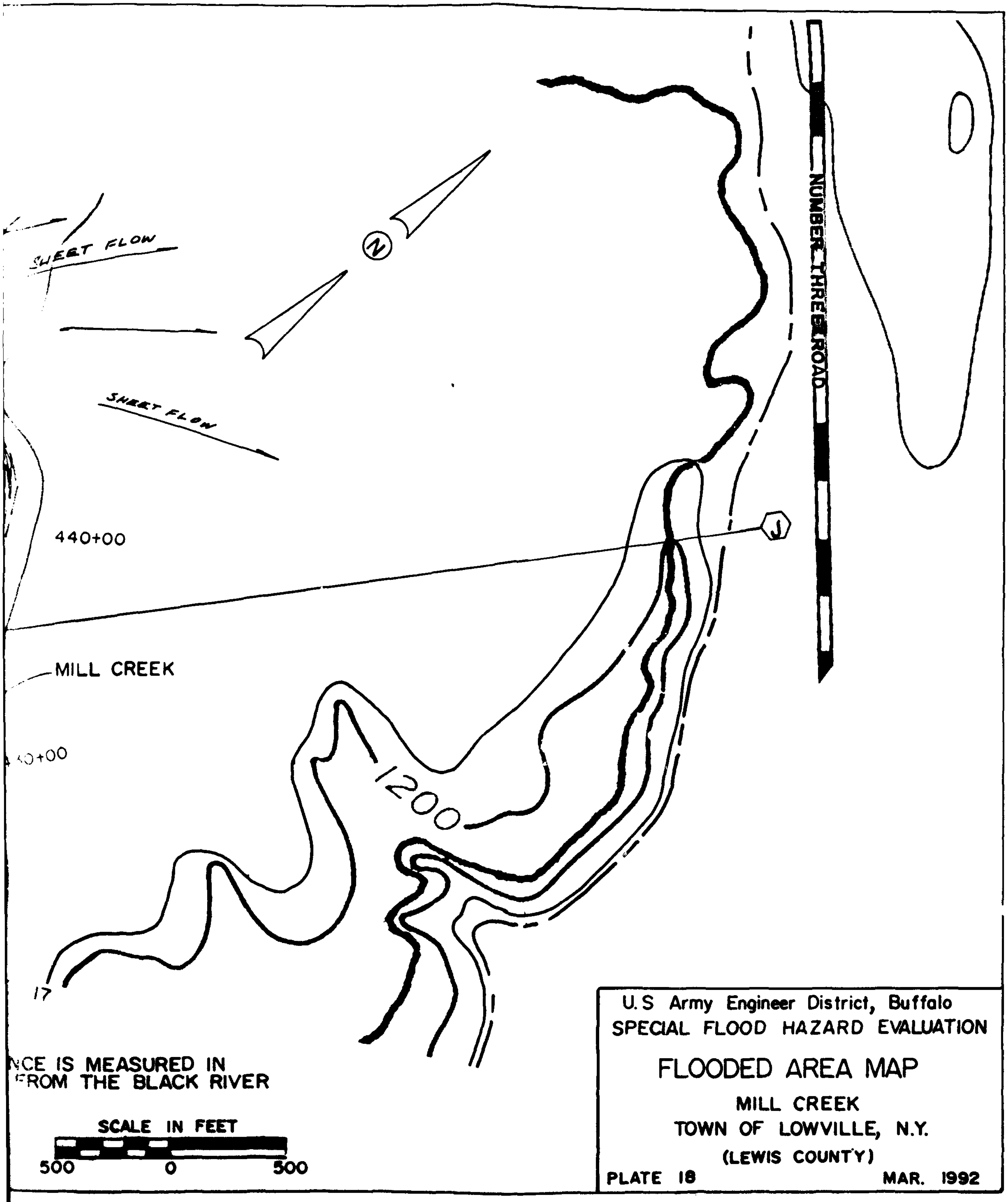
LEGEND

500-YEAR FLOODPLAIN BOUNDARY
100-YEAR FLOODPLAIN BOUNDARY
FLOODWAY LIMITS
CROSS SECTION LOCATION
1200 BASE FLOOD ELEVATION
RM-1 X ELEVATION REFERENCE MARK

DISTANCE IS MEASURED IN FEET FROM THE BLACK RIVER

SCALE IN FEET

500 0 5

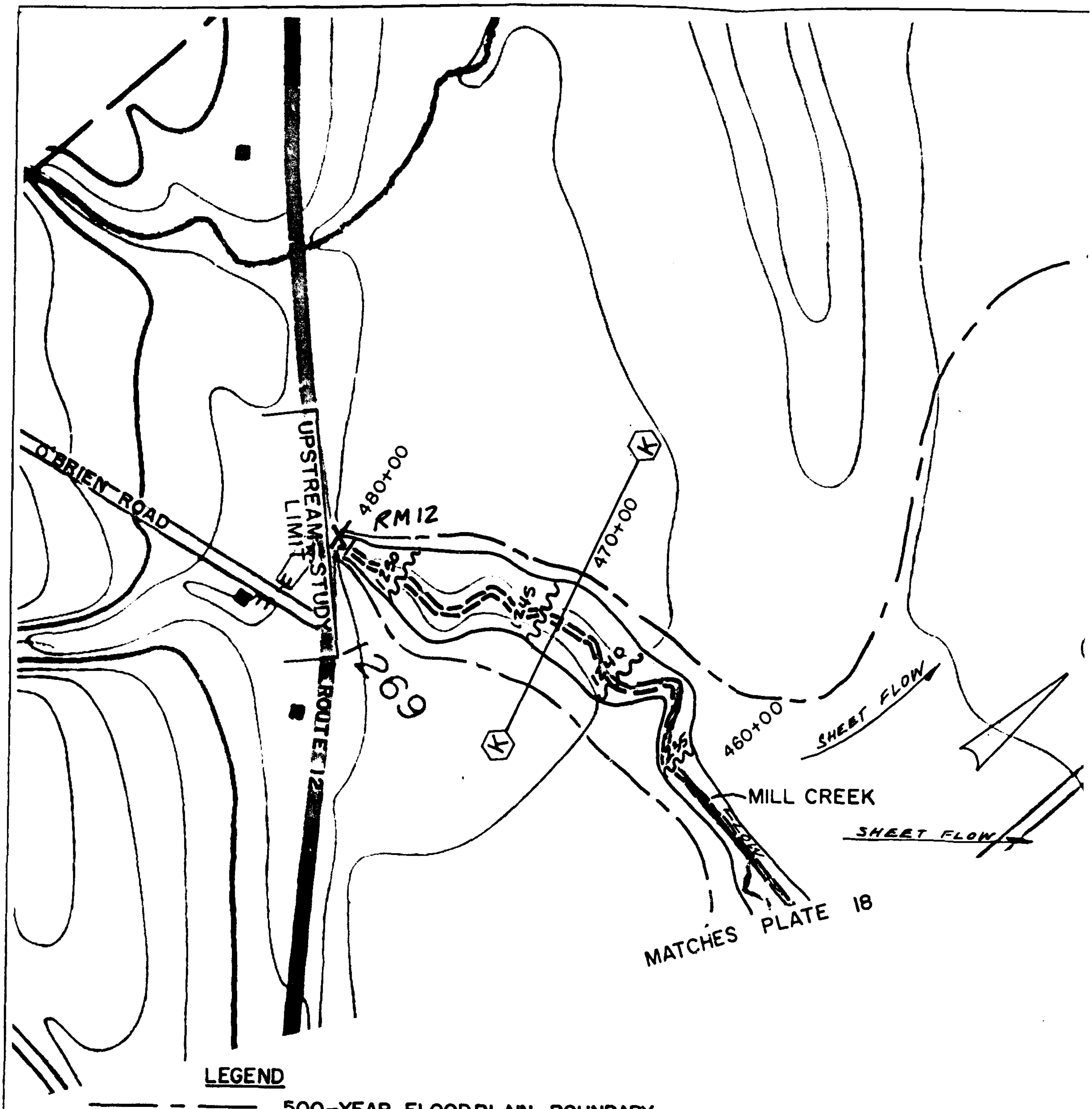


U.S Army Engineer District, Buffalo
SPECIAL FLOOD HAZARD EVALUATION

FLOODED AREA MAP

MILL CREEK
TOWN OF LOWVILLE, N.Y.
(LEWIS COUNTY)

PLATE 18 MAR. 1992



LEGEND

500-YEAR FLOODPLAIN BOUNDARY

100-YEAR FLOODPLAIN BOUNDARY

FLOODWAY LIMITS

CROSS SECTION LOCATION

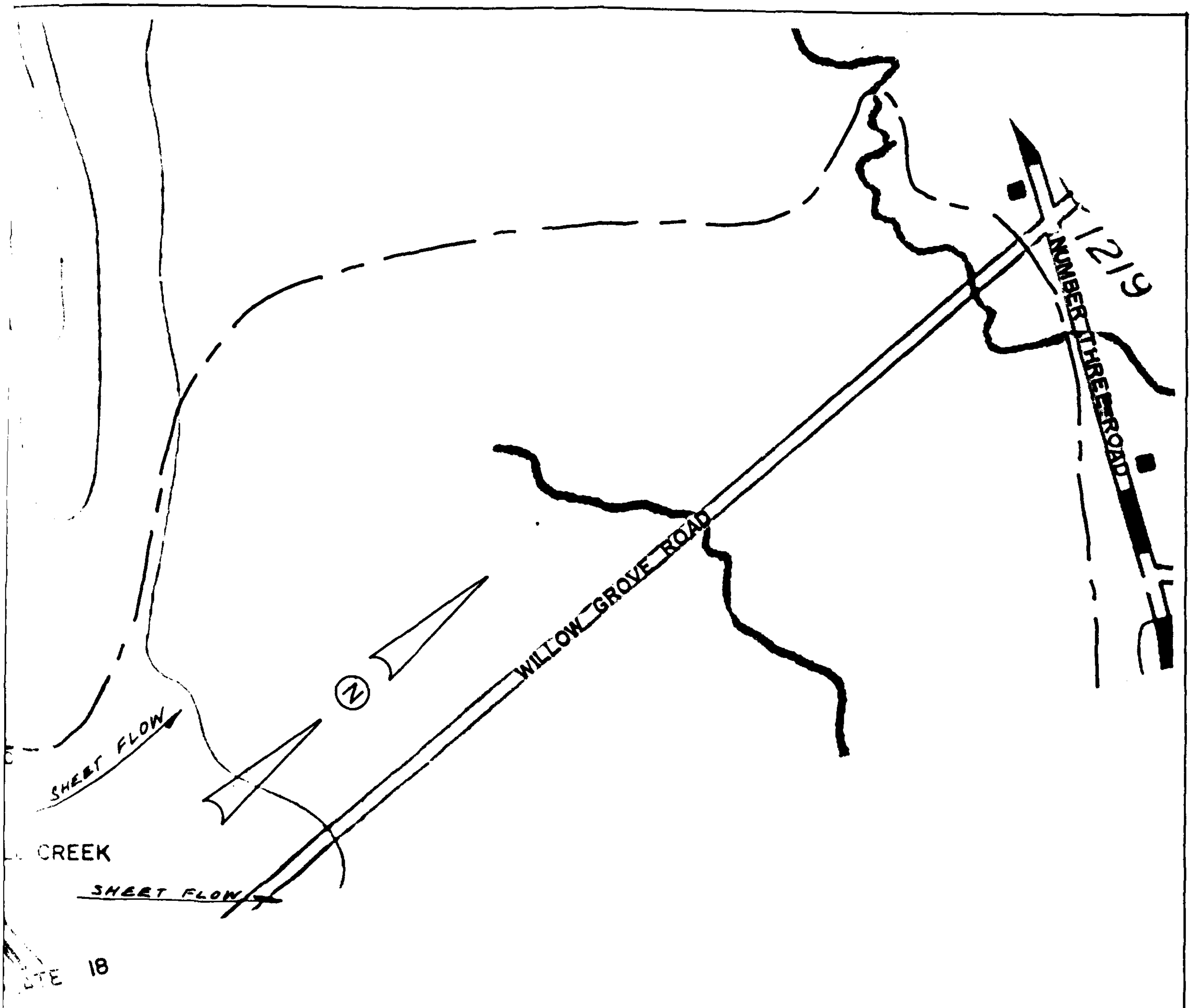
1200 BASE FLOOD ELEVATION

RM-1 X ELEVATION REFERENCE MARK

DISTANCE IS MEASUREI
FROM THE BLACK RIV

SCALE IN FEET

500 0



DISTANCE IS MEASURED IN FEET FROM THE BLACK RIVER.

SCALE IN FEET

500 0 500

U.S. Army Engineer District, Buffalo

SPECIAL FLOOD HAZARD EVALUATION

FLOODED AREA MAP

MILL CREEK

TOWN OF LOWVILLE, N.Y.

(LEWIS COUNTY)

PLATE 19 MAR. 1992